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الذكاءات المتعددة وتصميم بنوك المعرفة

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إعداد
مركز تنمية الإمكانات والقدرات البشرية بدار العلوم

إشـــراف
دكتور محمد عبدالهادي حسين
مؤسس نظرية الذكاءات المتعددة في مصر والوطن العربي

دار العلوم للنشر والتوزيع



ديسمبر ٢٠٠٧

قَالُواْ سُبۡحَـٰنَكَ لَا عِلۡمَ لَنَآ إِلَّا مَا عَلَّمۡتَنَآۖ إِنَّكَ أَنتَ ٱلۡعَلِيمُ ٱلۡحَكِيمُ

(سورة البقرة: الآية ٣٢)

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إهـــداء

إلى شهداء الأمة العربية والإسلامية،

أهدي هذا العمل.

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ورشة عمل
في قلب نظرية الذكاءات المتعددة

الذكاءات المتعددة
وتصميم بنوك المعرفة

مُقدِّمة

لا تقرأ هذه المقدمة

الحمد لله رب العالمين والصلاة على أشرف المرسلين، سيدنا محمد بن عبدالله وعلى آله، وصحبه وسلم أجمعين، وأما بعد: يسعدني أن أقوم بتقديم هذه السلسلة ضمن هذه المكتبة العلمية الجديدة التي تتضمن الاهتمام والتركيز على الدورات التدريبية المكثفة وورش العمل التطبيقية والاستفادة من أفضل ممارسات نظرية الذكاءات المتعددة على المستوى الدولي بقيادة كبار علماء هذه النظرية ومفكريها الكبار.

وقد ركزنا في هذه الورشة على الدروس الجديدة المستفادة من مشروع مهارات القرن الواحد والعشرين 21st Century Skills ودور نظرية الذكاءات المتعددة في تصميم بنوك وأفكار معرفية جديدة وكيفية الاستفادة من الإضافات الجديدة دائماً.

ولا أريد الآن عزيزي القارئ أن أطيل عليك. فلا جدوى حقيقية من وراء الحديث الطويل النظري. لذا أنصحك بعدم قراءة مقدمات لا جدوى لها. وأرجو منك الآن أن تتوجه لقراءة الورشة والدروس المستفادة عملياً منها فهذا أفضل.

وإنني إذ أنتظر مراسلاتك على:

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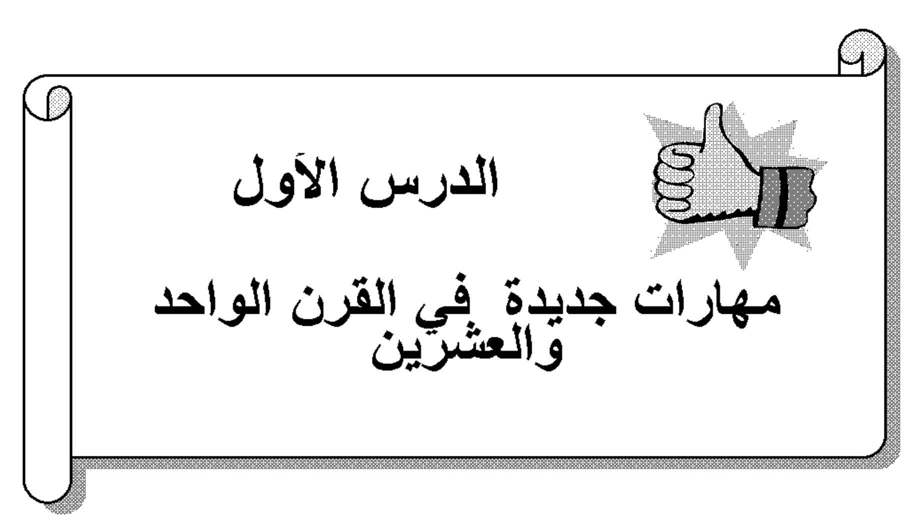
موبايل: 0108165012

e-mail: mohamedabdelhadi6@yahoo.com

يسعدني أن أقوم بتقديم كافة الاستشارات والتدريبات اللازمة لكل المؤسسات العربية، وأرجو من الله العزيز القدير أن يوفقنا إلى ما يحب دائماً ويرضاه، إنه سميع مجيب ... وآخر دعوانا أن الحمد لله رب العالمين.

دكتور/ محمد عبدالهادي حسين





الدرس الأول

مهارات جديدة في القرن الواحد والعشرين

1- كيف تتم مساعدة التلاميذ في المجتمع الرقمي؟

سوف تغير التكنولوجيا الأعمال في العالم. ويحتاج التلاميذ اليوم إلى تكنيكات جديدة من أجل إحداث التغيير تؤدي إلى توليد مهارات جديدة. إننا نريد تطبيقات جديدة تؤدي إلى حدوث تغيرات جوهرية في المجتمع إلى الأفضل.

إن المعرفة وخاصة مجال العلوم المعرفية (Cognitive Sciences) لها دور ريادي في تطوير المجتمع ورفع قدرات أبناؤه(*).

2- المهارات الجديدة المطلوبة في القرن الواحد والعشرين:

محو الأمية الرقمية Digital Literacy:

- محو الأمية (الاقتصادية - التكنولوجيا - العلمية ....).
- محو الأمية البصرية، ومحو الأمية المعلوماتية.
- محو الأمية الثقافية، والوعي العالمي والدولي.

التواصل الفعال Effective Communication:

- العمل الفريقي، والتعاون، والمهارات الاجتماعية.
- الفرد والمجتمع، والمسئولية الحضارية.
- التواصل الجذاب والفعال.

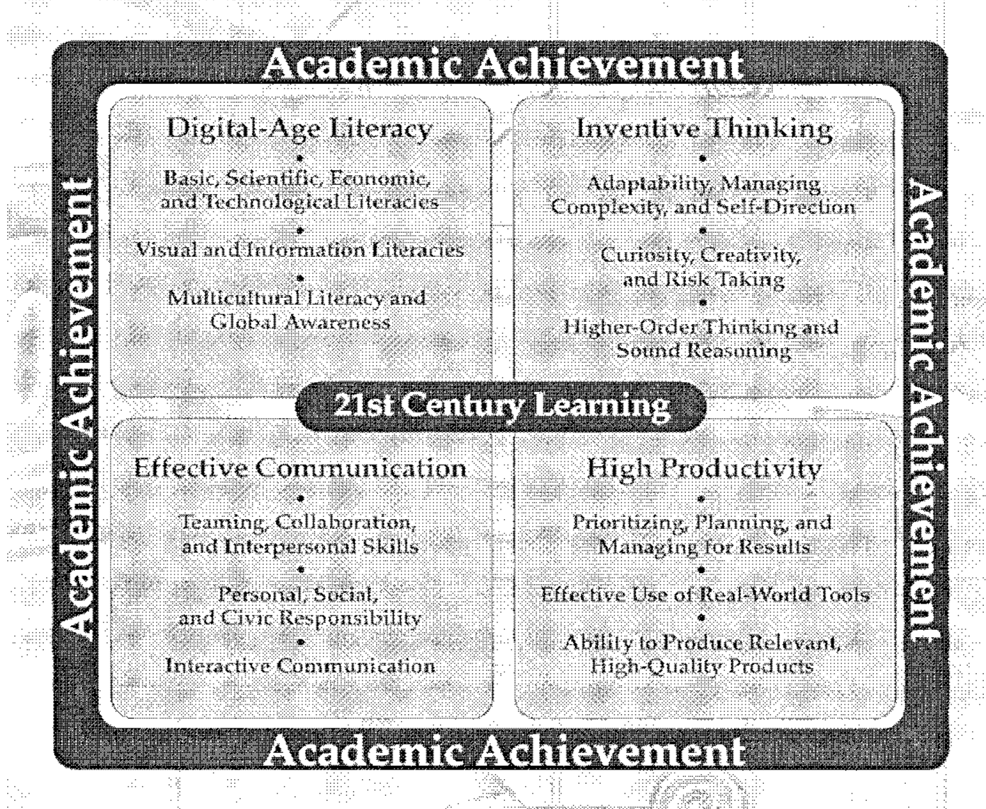
(*) Source (1): www.NCREL.org/engauge
Source (2): www.21century.org

التفكير التجديدي والابتكاري والاختراعي Inventive Thinking:

- التكيف، الإدارة، التعقيد، والاتجاه الذاتي.
- الإبداع وتعدد المهام. والذكاءات المتعددة، وقوة التفكير.
- مهارات التفكير العليا، وقوة الاستدلال (High Order Thinking).

الإنتاجية العالية High Productivity:

- التخطيط وصنع القرارات، والاختيار بين البدائل، والتنبؤ، وتحديد الأولويات وإدارة النتائج Managing for Results.
- الاستخدام الفعال لأدوات العالم الحقيقي Real World Tools.
- القدرة على إنتاج منتجات ذات جودة عالية.



3- أهم المبادرات التي تمت على صعيد تحقيق مجتمع التعلم النشط ومهارات جديدة لقرن جديد:

(1) National education Technology standards (nets) for students. (2000).
www.cnets.itste.org/students/s.book.html

(2) What work requires for school. (1991)
www.wdr.doleta.gov/scans/whatwork/whatwork.html

(3) Standards for technological literacy: Content for the study of technology (2000)
www.org/taa/pdfs/xstnd.pdf

(4) www.c21st century literacy.org/white/whitepaper english.pdf.

(5) Preparing students for the 21st century, 1996. American association of school

الدرس الثاني



المعلم: علِّمْ من أجل التغيير
الطالب: اقرأ / فكر / اكتب كي تتعلم

نموذج النمو: Grow

تعلم أكثر عن	**G**oal
اقرأ	**R**ead
وضح ماذا وجدت من خلال: خريطة .... خط زمني .... دياجرام .... أشكال	**O**rganize
اكتب .... ارســـم	**W**rite

مثال:

الهدف (Goal)	تعلم كيف تحلل القيم الثقافية
اقـــرأ (Read)	حول الثقافة
نظم (Organize)	اصنع خريطة كلمات ثقافية اصنع قائمة حقائق ثقافية اصنع معلومات ثقافية اصنع خريطة ثقافية
اكتب (Write)	بوكلت عن القيم الثقافية

الدرس الثالث

فكر فيها من خلال ......

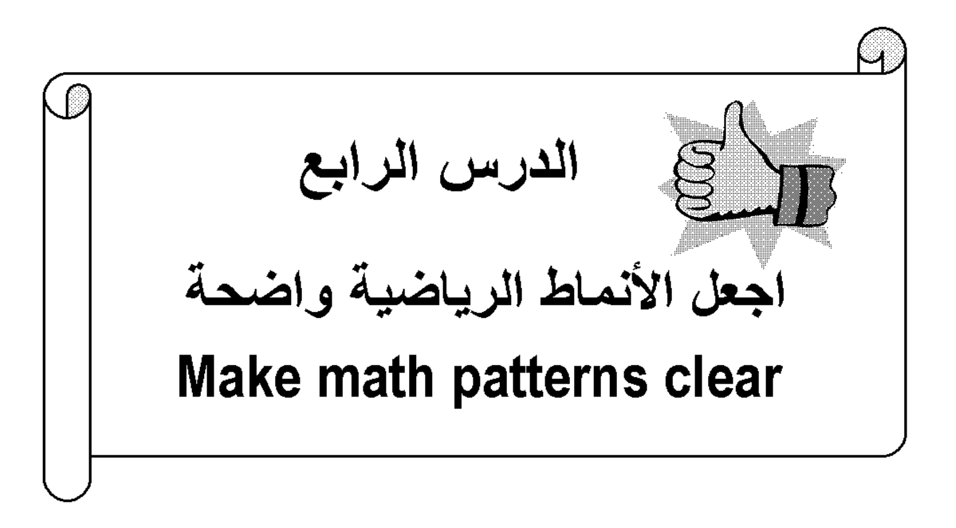
Think it through

تدور الأسئلة التقويمية حول (فكر فيها من خلال ....) ولجعل رؤيتك أوضح أصدر أحكام قاطعة في ضوء الأسئلة.

- ما هي الحقائق الأكثر أهمية؟
- ما الذي جعله أحسن كتاب؟
- هل هذا حقيقة أم رأي؟
- أي الأحداث أكثر أهمية؟
- أيهم الأكثر شخصية؟
- أي وصف الأفضل للبطل؟
- أيهما الأعظم أو الأفضل أو الأكبر؟
- ما هي أفضل إجابة؟ ولماذا؟
- أعط تحديد دقيق لرأيك عن ....
- أي جزء هو الأكثر أهمية؟
- ما هو أفضل نهاية للقصة؟
- ما هي أفضل طريقة للكتابة الواضحة؟
- ما هو أفضل ....؟

أسئلة تقويمية:

1- سؤال:	2- سؤال:
الإجابات: أ - ب- ج- د-	**الإجابات:** أ - ب- ج- د-



يمكن استخدام العلاقات العكسية والمتضادات، والإضافات، والطرح، والتعددية، والقسمة، من اجل المشكلات.

Make Math Patterns Clear

Diagram Numerical Relationships

I can use inverse relationships of addition/subtraction and multiplication/division to solve problems. (6B)

Ten Ways to Make a 10

10

Meet the sta... Check your ... is it

...ard: ...rned by

الدرس الخامس

الكلمات والمصطلحات التكنولوجية التي يحتاج الطلاب لاستخدامها

Technology Vocabulary

Here are some of the terms students need to know about technology. Choose the words your class will learn. Add more words, too. Your students can make the same bilingual chart for any topic.

k-1	2	3	4	5	6-8
air = aire big = grande cold = frío color = color cool = fresco drink = bebida feel = sentir gas = gas hot = caliente light = luz see = vea shape = forma size = tamaño = small pequeño smell = olor solid = sólido warm = tibio water = agua wet = moje	few = pocos foot = pie = inch pulgada = large grande little = poco = many muchos = metal metal mile = milla = paper papel rock = piedra short = chico tall = alta = wood madera	balance = *equilibrio* effort = *esfuerzo* energy = *energía* force = *fuerza* friction = *fricción* fulcrum = *fulcro* function = *función* gravity = *gravedad* inclined plane = *avion inclinado* invention = *invención* lever = *palanca* machine = *máquina* mechanical = *mecánico* motion = *movimiento* pull = *tire* pulley = *polea* simple machine = *máquina sencilla* slope = *cuesta* wheel = *rueda* wheel and axle = *ruede y el eje* work = *trabajo*	absolute zero = *cero absoluto* acceleration = *aceleración* attract = *atraiga* boiling point = *punto hirviente* Celsius = *centígrados* deceleration = *desaceleración* degree = *grado* electromagnet = *electroimán* energy transfer = *transferencia de energía* Fahrenheit = *Fahrenheit* force = *fuerza* friction = *fricción* inertia = *inercia* insulator = *aislador* magnet = *imán* magnetic = *magnético* magnetic field = *campo magnético* magnetic force = *fuerza magnética*	absorption = *absorción* Bernoulli's principal = *principal de Bernoulli* conduction = *conducción* conductor = *conductor* convection = *convección* drag = *obstáculo* electrical = *eléctrico* expand = *expandir* filament = *filamento* fuel energy = *energía de combustible* gravity = *gravedad* illuminate = *iluminar* incandescent = *incandescente* lift = *elevar* mass = *masa* prism = *prisma* radiant = *radiante* thermostat = *termostato* wave = *onda* neon = *neón*	data = *datos* equilibrium = *equilibrio* evidence = *evidencia* gravitational force = *fuerza gravitacional* hypothesis = *hipótesis* kinetic energy = *energía cinética* materials = *materiales* matter = *materia* momentum = *ímpetu* physical = *físico* potential = *potencial* potential energy = *energia potencial* predict = *prediga* probability = *probilidad* procedure = *procedimiento* projectile = *proyectil* proof = *prueba* property = *propiedad* range = *gama*

k-1	2	3	4	5	6-8
			magnetism = *magnetismo* mechanical energy = *energía mecánica* melting point = *punto de fusión* pole = *poste* temperature = *temperat*	power = *poder* radiation = *radiación* rate = *ritmo* reflection = *reflexión* refraction = *refracción* sound = *sonido* thrust = *empuje*	resistance = *resistencia* rotate = *rote* scientific method = *método científico* terminal velocity = *velocidad terminal* theory = *teoría* thermal = *térmica* universal gravitation = *gravitación universal* variable = *variable* velocity = *velocidad*



الدرس السادس

نص لنص

Text to Text

المعلم:

اسأل سؤال كبير، مثل:

- ما هو المهم أن نعرفه عن ؟
- كيف تعمل هذه الآلة.
- ما الذي حدث؟

الطلاب:

(1) أحصل عليها:

- راجعها ... ماذا هنا.
- أفحص كي تجد أهم المعلومات.
- أنظر من خلال الفصل أو الكتاب وأقرأ لتجد المعلومات والإجابة عن السؤال.
- اجمع الحقائق مع الكلمات والرسوم.

(2) أحصل على أكثر:

- ابحث أكثر عن الحقائق التي تريد جمع المعلومات عنها.
- أنظر في الكتب لمزيد من المعلومات التي تساعد على توضيح الأمور.

(3) نظمها:

- أفرز حقائقك
- قرر ما هو المهم

(4) أحصل عليها من خلال:

- أكتب مخرجاتك.
- أكتب ما الذي تعلمته.

(5) أنتجها وأعرضها:

- اقرأ نصك بصوتك عالياً.



Culture Vocabulary

K	1	2	3	4-8		
family	color	building	celebrate	agriculture	design	migrant
feel	flag	change	city	ancestor	develop	migrate
help	good	law	communicate	archeologist	diversity	mission
here	grandparent	need	community	architect	empire	native
hope	help	now	cooperate	architecture	ethnic	nationalism
live	holiday	past	distance	artifacts	group	nomad
mother	home	place	history	barter	event	past
share	hope	present	idea	border	extended	patriot
sister	light	pride	important	capital	family	pioneer
song	live	share	landmark	century	forum	present time
sound	parent	then	message	ceremony	generation	progress
	share	today	past	change	heritage	progressive
	show	rule	proud	city	history	recognize
		value	route	communicate	historian	refugee
		when	shelter	community	homeland	responsibility
		work	transportation	conflict	identity	shelter
				constant	immigrant	society
				continue	initiative	symbol
				country	institution	town
				culture	justice	trade
				current	language	value
				custom	leader	village
					liberty	



ما هو الموضوع؟

....
....

علام يركز؟

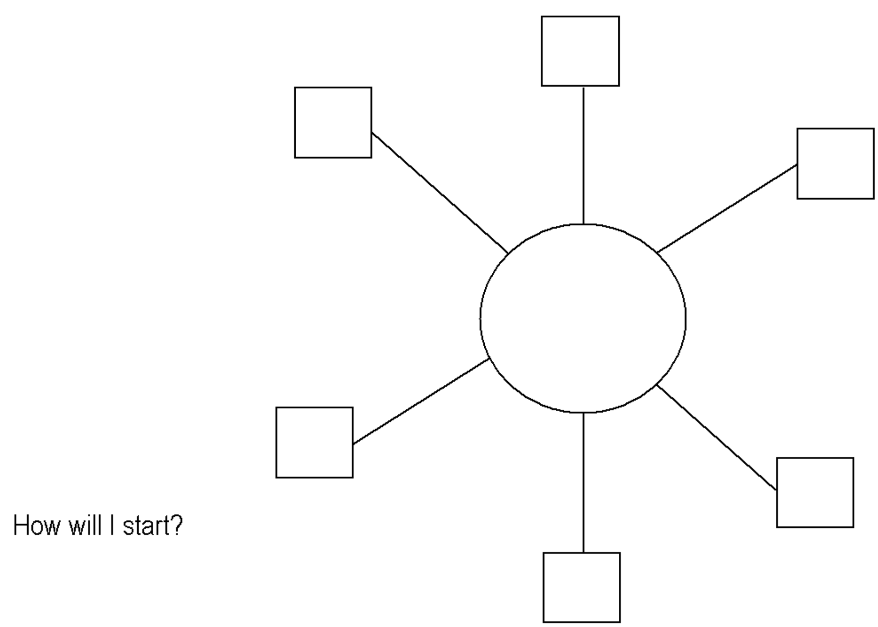
....
....

ترتكز فكرتي الأساسية على...

وترتكز أفكاري الفرعية على..

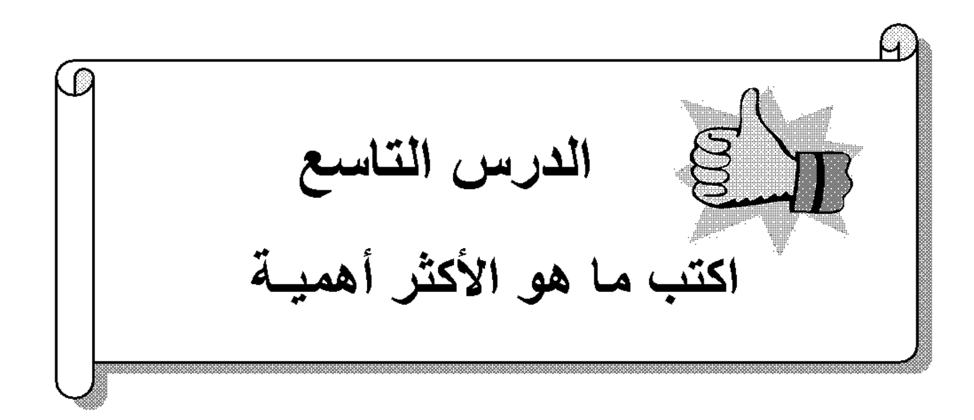
ما هي المعلومات الهامة التي توضح أفكاري جليا؟

....



How will I start?

How will I concluded?



- استمع لتتعلم (Listen to learn).
- صف وحدد المعلومات الهامة (Describe and identify important information).

Topic: ....

What I Knew

What I Learned

What I Think

Take what you knew and what you learned and explain this topic in your own words..

Write a: __paragraph __poem __story ___letter________________________________

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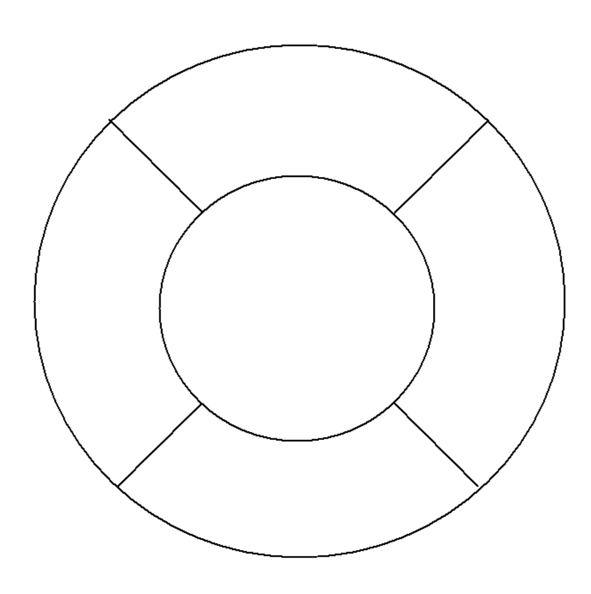
Meet the standard:
Check your work—is it
- ✓ complete?
- ✓ correct?
- ✓ clear?

Exceed the Standard:
Write what you learned by doing this project.



الثقــافة ....

- ما هو المهم؟ ضعه داخل الدائرة.
- ما هي المعلومات الهامة لجعل الفكرة واضحة؟
- ارسم صورة للعرض خارج Outside الدائرة.



س: ماذا يوضح شكل دياجرامك حول/ عن هذه الثقافة؟

What does your diagram show about this culture?



Culture: --

Show parts of the culture

Meet the standard:
Check your work—is it
- ✓ complete?
- ✓ correct?
- ✓ clear?

Exceed the Standard:
Write what you learned by doing this project.



صمم قائمة أو أرسم الأشياء التي يقوم بها الناس في ثقافتهم. ما هي القيم والأهداف المتضمنة داخل الثقافة.

الهدف	ما الواضح عن القيم داخل الثقافة

س: ماذا تعتقد أنه مهم داخل هذه الثقافة؟

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الدرس الثالث عشر

أنا استطعت تصنيف المعلومات

I can classify information

الموضوع (Topic) ....

س: ما الذي توضحه خريطتك؟ أكتب ما الذي توضحه هذه الخريطة بخصوص موضوعك؟

....

الدرس الرابع عشر

أستطيع التعامل مع مواقع المعلومات الهامة

I can Locate important information

مثلما تجمع المعلومات، صمم قائمة بالموضوعات المهمة التي تفكر فيها:

- الموضوع:
- المعلومات العامة:
- **صمم قائمة لأشهر حقائق حول الموضوع بخصوص ما يرتبط به.**

1	
2	
3	

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8	
9	
10	

س: ما هي أكثر الحقائق الهامة حول الموضوع التي وجدتها؟

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س: ما الذي تعتقد أنه الأكثر أهمية؟

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صمم قائمة لثلاث أشخاص مختلفين يمثلون جزء من قصة أو تاريخ.

-1

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-2

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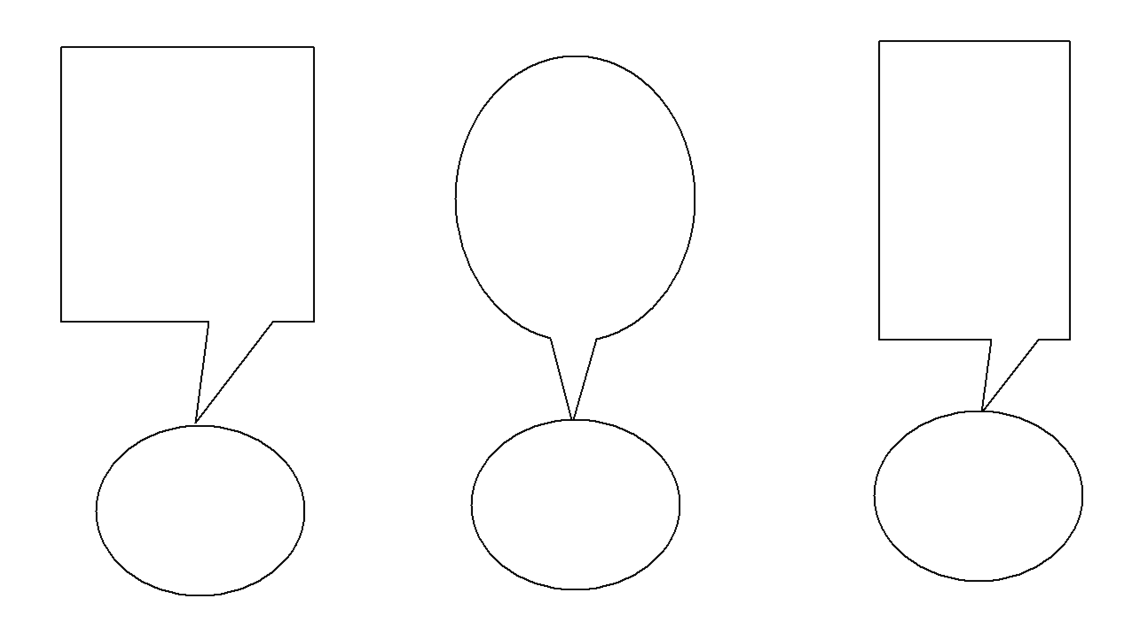
....

-3

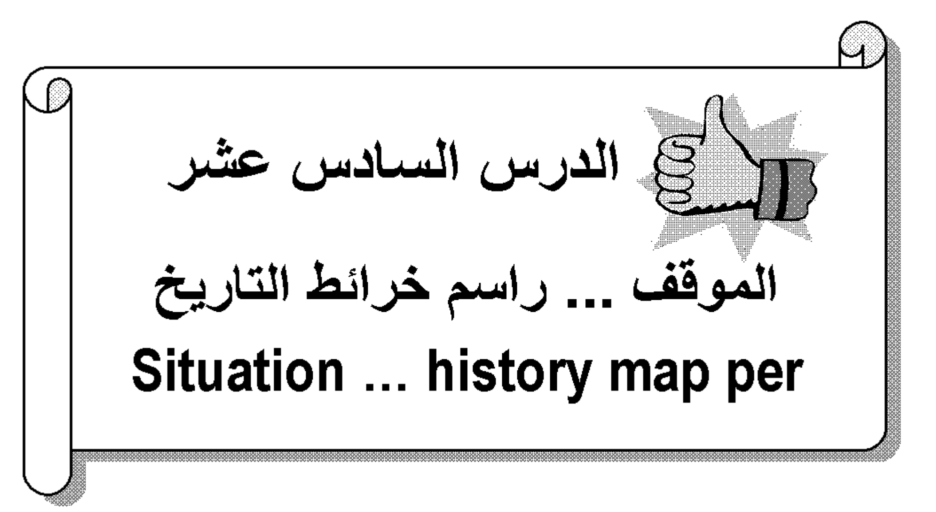
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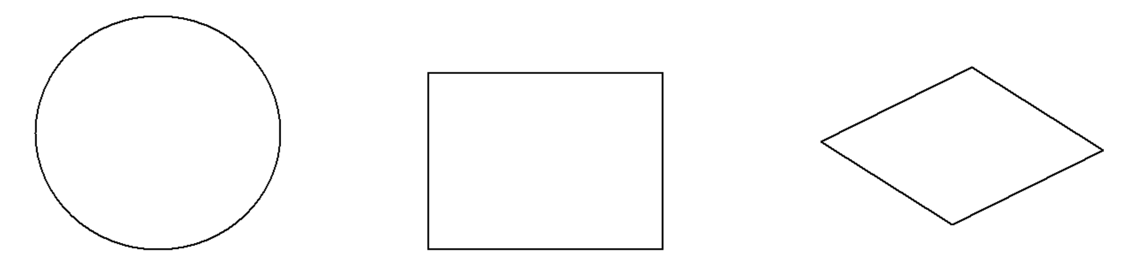
إلى كل شخص، أكتب ماذا يقولون أو يفكرون أثناء أي موقف. أكتب جملة قصيرة تحت كل واحدة منهم مما يلي:



ملحوظة: اهتم بكتابة التعبيرات أسفل كل رسم للتوضيح والاستفادة.



ارسم ثلاث أشخاص تراهم هنا ... (طبعا من وجهة نظرك الشخصية)



خريطة المكان (Map the place)

تسلسل الأحداث (Sequence the Events)

أكتب ما يقوله الناس عن الأحداث التي يمرون بها في حياتهم

Write what those persons might have said about one of those events



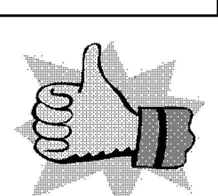
- تستطيع تحديد العلاقات.
- تستطيع أن تكتب وأن توضح الموقف.
- هذا النشاط تطبيقي وعملي، ويمكن أن يمثل قصة أو تاريخ.
- يقرأ الطلاب النصوص بالكامل.

ارسم صورة لهذا الموقف.

- أكتب عن:

1- إذا ما كنت هناك في هذا الموقف.

2- يوم في حياتك.



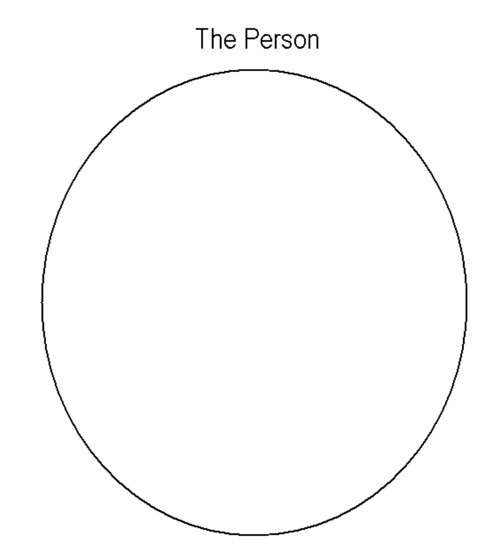
اسمع وشاهد: اسم ما سمعت

Listen and see: draw what you hear

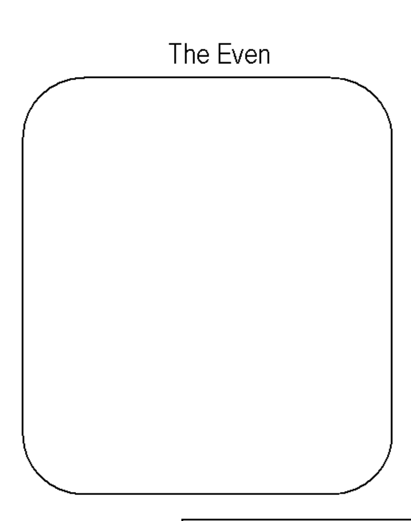
4A Can listen effectively in formal and informal situations

The place

The Person



The Even



Meet the standard:
Check your work—is it
- ✓ complete?
- ✓ correct?
- ✓ clear?

Exceed the Standard:
Write what you learned by doing this project.

Write a title that fits all three arts.



الموضوع: ....

أستطيع تحديد الكلمات التي توضح الموضوع:

الكلمة	وضح ما المعاني وأرسم الصورة	أكتب كلمات أخرى توضح ما المقصود بهذه الكلمات

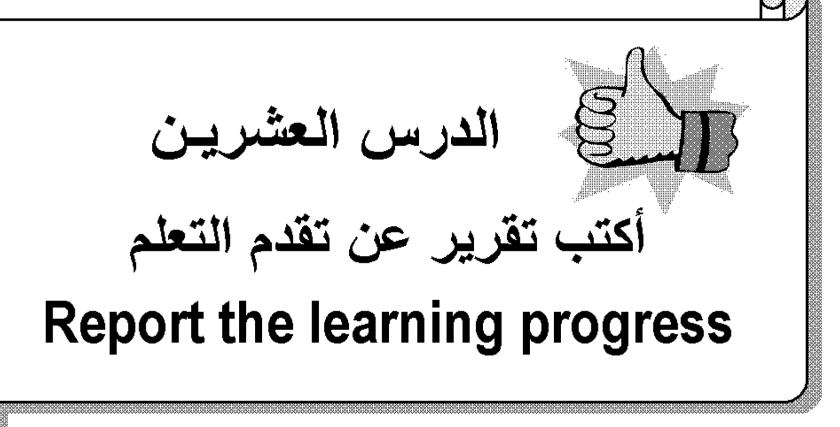
استخدم الكلمات من أجل الكتابة عن الموضوع:

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الموضوع: القيم وطرق المعيشة في ....

أقرأ وتعلم حول هذه الثقافة. اقرأ التواريخ، الأشعار. ضع قائمة لما تتعلمه كل يوم

التركيز خلال الأسبوع على	الاثنين	الثلاثاء	الأربعاء	الخميس	الجمعة
أين يعيشون ولماذا اختاروا لمعيشة هناك					
الأكل والطعام والملبس					
القيم والمعتقدات					
كيف تغير حياتهم					



الدرس الواحد
التدريب بالاعتماد على الأنشطة
Activity based instruction

متطلبات تصميم التدريس (Inquiry oriented lessons)

- مقابلة أنماط تعلم التلاميذ.
- مشاركة أكثر في النشاطات.
- أنشطة يدوية أكثر.
- مهارات التفكير (المعرفي)

التعلم التعاوني (Cooperative learning)

- www.nwrel.org/msec/bub.html

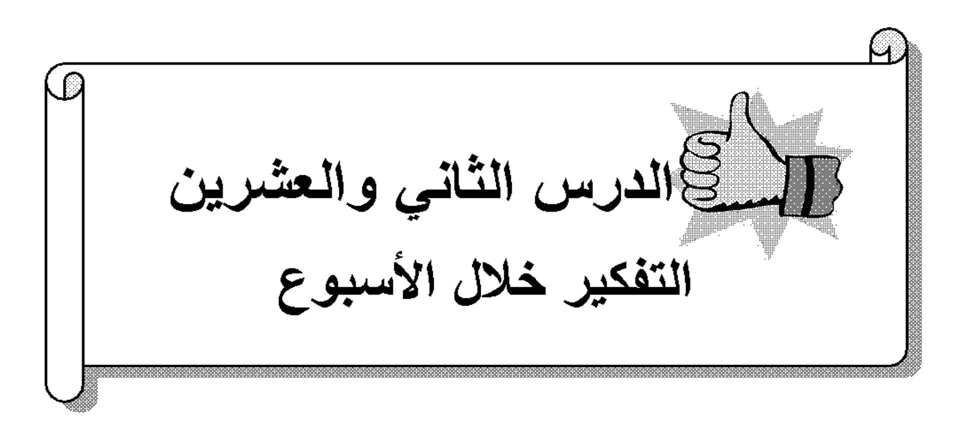
الوحدات المتكاملة (Integrated units)

- التلاميذ يفضلون الأعمال والمشروعات المتكاملة والدروس والسيناريوهات التعليمية.

- ربط الطلاب بمواقف العالم الحقيقية.
- تعرف الطلاب على المعارف العامة ونقبلهم لها بشغف وحب.
- تزايد الاعتمادية على:

  (أ) الابتكارية

  (ب) خط الزمن والتوقيت.
- استخدام عروض الفيديو والكمبيوتر (باوربوينت).
- استخدام التقييم البديل (الأصيل) Alternative & authentic assessment



الموضوع (Topic): ....

ماذا ومتى سوف يتعلم الطلاب القراءة حول الموضوع؟

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Monday Activities ***Make It Clear.***	Tuesday Activities ***Take It and Use It***	Wednesday Activities ***Work on It***	Thursday Assess/Clarify ***Think It Through***	Friday Activities ***Fix and Finish***
Focus __KW __Teacher Models __Student Demonstrates __Homework Review/Connect __Last Week Review/Connect ________________ Activities Skim textbook to find facts about animal adaptation. Report __kwL __Learning Log __Think, Pair, Share __Student demonstrates ________________ Homework Look for and list examples of animal adaptations in your neighborhood.	Focus __KW __Teacher Models __Student Demonstrates __Homework Review/Connect __Yesterday Review/Connect ________________ Activities Make chart showing how animals adapt to an environment through behavior, coloration, shape, size. Report __kwL __Learning Log __Think, Pair, Share __Student demonstrates ________________ Homework Write a summary of what your chart shows.	Focus __KW __Teacher Models __Student Demonstrates __Homework Review/Connect __Yesterday Review/Connect ________________ Activities Make up and exchange questions about the chapter. Report __kwL __Learning Log __Think, Pair, Share __Student demonstrates ________________ Homework Make a list of your top ten animal adaptation facts you can use when we take the test on Thursday.	Focus __KW __Teacher Models __Student Demonstrates __Homework Review/Connect __Yesterday Review/Connect ________________ Activities Take chapter quiz. Locate answers for any items you miss in the text. Then correct the answer and tell why your new answer is correct. Report __kwL __Learning Log __Think, Pair, Share __Student demonstrates ________________ Homework Write a note from an animal about how it has adapted to survive.	Focus __KW __Teacher Models __Student Demonstrates __Homework Review/Connect __Yesterday Review/Connect ________________ Activities Write about chapter for students in a younger grade. Draw pictures for the summary. Report __kwL __Learning Log __Think, Pair, Share __Student demonstrates ________________ Homework Look for examples of animal adaptation on nature shows on the tv.

الدرس الثالث والعشرين

أكتب تقرير عن تقدم التعلم

Report the learning progress

الأسبوع	موضوع الأسبوع	كلمات الأسبوع	خريطة الأسبوع	قراءات الأسبوع	المنظم الجرافيكي هذا الأسبوع	الكتابة في هذا الأسبوع
(1)						
(2)						
(3)						
(4)						
(5)						

خبرات وتجارب عالمية في الذكاءات المتعددة



تقديم:

أنتج (الدكتور/ هوارد جاردنر) نظرية الذكاءات المتعددة في عام 1983 حيث حظيت باهتمام وتقدير كبيرين من المجتمع التربوي العالمي. وقد بدأنا دراسة الذكاءات المتعددة للراشدين (AMI) في ديسمبر عام 1996 بالسؤال التالي:

> كيف تدعم نظرية الذكاءات المتعددة التدريس والتقييم في تعليم الكبار والراشدين
> [ABD] (Adult Basic Education)
> و [ASE] (Adult Secondary Education)
> و تحدث اللغة الإنجليزية (ESOL) ؟(*)

(*) Source:
1- http://pzweb.harvard.edu/ami
2- The AMI study is a collaboration between Harvard Project Zero and the New England Literacy Resource Center (NELRC) / World Educating under the auspices of the National Center for the Study of Adult Learning and Literacy (NCSALL) at Harvard Graduate School of Education.

1- القسم الأول: نظرية الذكاءات المتعددة (Multiple Intelligences Theory):

وتنقسم الخبرات والتجارب هنا إلى ثلاثة أقسام أساسية وهي:

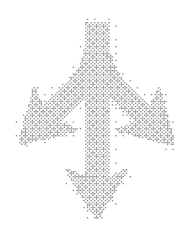
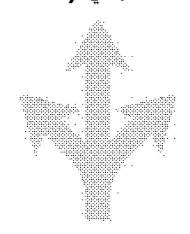
ويتضمن هذا القسم الكتب والمقالات التي تركز على نظرية الذكاءات المتعددة مثل المقالات الأساسية

لهوارد جاردنر (الأصلية). وعروض وممارسات نظرية الذكاءات المتعددة.

2- القسم الثاني: المشروعات البحثية للذكاءات المتعددة (MI research projects)

يتناول هذا القسم تطبيقات نظرية الذكاءات المتعددة في المدارس والمضامين التربوية لهذه التطبيقات بالإضافة لاتجاهات المعلمين والطلاب تجاه ممارساتها المتنوعة.

3- القسم الثالث: الممارسة المهنية والداخل المهني (Intervention and Practices).

أولاً- نظرية الذكاءات المتعددة (Multiple Intelligences Theory):

1- توماس أرمستورنج (1993): 7 أنواع من الذكاءات: حدد ونمي ذكاءاتك.
2- هوارد جاردنر (1993): أطر العقل (الطبعة العاشرة) نظرية الذكاءات المتعددة.
3- هوارد جاردنر (1993): الذكاءات المتعددة، النظرية في الممارسة.
4- هوارد جاردنر (1993): نقاط مفتاحية للذكاءات المتعددة داخل المدرسة.
5- هوارد جاردنر (1995): انعكاسات الذكاءات المتعددة، رسائل وأساطير.
6- هوارد جاردنر (1996): التعمق داخل نظرية الذكاءات المتعددة.
7- هوارد جاردنر (1996): هل هناك ذكاءات إضافية؟ حالة الذكاءات الطبيعي والروحي والوجودي.
8- هوارد جاردنر (1997): الذكاءات المتعددة والفهم ونماذج تصميم استراتيجيات التدريس.
9- هوارد جاردنر (1999): من يملكون الذكاء؟
10- هوارد جاردنر (1999): إعادة تأطير الذكاء.
11- ديفيد كان (1996): نظرية الذكاءات المتعددة تدعم مارس متسوري.
12- كرتشفسكي وسيدل (1998): العقول في العمل. تطبيقات نظرية الذكاءات المتعددة داخل الفصل الدراسي.
13- ج. ماكر (1994): التقييم الأصيل وحل المشكلات والموهبة لدى تلاميذ المدارس الثانوية.
14- ماك كلاسكي (1995): تقييم تعلم التلاميذ من خلال الذكاءات المتعددة.
15- سما جورتشكي (1995): إعادة التعرف على المعاني من خلال دمج المنهج التعليمي
16- ب. تورف (1996): كيف تكون ذكياً؟ ممارسات الذكاءات المتعددة داخل الفصول الدراسية.

ثانياً- مشروعات وبحوث الذكاءات المتعددة (MIT Research Projects)

17- لندا وبروس كامبل (1999): الذكاءات المتعددة وتحصيل التلاميذ، قصص نجاح من داخل ستة مدارس.
18- د. كارسون (1996): التباين داخل الفصول الدراسية: الذكاءات المتعددة وحل مشكلات الرياضيات.
19- ج. شيد (1992): بناءات القوى لدى التلاميذ: فحص مشروع الطيب (سبكترم).
20- جرين هاوك (1997): الذكاءات المتعددة مقابل التقنين.
21- هيرير وستون (1995): الذكاءات المتعددة والتحصيل، دروس عن الفروق الفردية مع صعوبات التعلم.
22- كرونهابر وكرتيشفسكي (1994): توسيع محددات التعلم والتعليم، ملاحظات في ظل نظرية الذكاءات وخلفياتها.
23- ج. ليبر (1996): خطوات مبكرة في اتجاه نظرية الذكاءات المتعددة داخل الفصول الدراسية وممارساتها.
24- رجلروس (1997): فحص قوي صعوبات التعلم.
25- ميتيتال وهاربر (1997): اتجاهات تجاه منهج الذكاءات المتعددة.
26- ج. رادفورد (1994): أثر كلاً من نظريتي الذكاءات المتعددة، ونظرية التدفق على حياة التلاميذ داخل المدارس.
27- ستراهان، باولس (1996): التعليم من أجل التباين من خلال نظرية الذكاءات المتعددة.

ثالثاً- ممارسات الذكاءات المتعددة:

28- كالتيباك، فيتر (2007): كيف تنمو الذكاءات المتعددة.
39- توماس أرمسترونج (1994): الذكاءات المتعددة داخل حجرات الدراسة.
30- بومن ستيابن (2007): الذكاءات المتعددة داخل فصول التعليم الأساسي - مدخل إلى الممارسة والتطبيق الميداني.
31- بروس كامبل (1994): الكتاب السنوي لنظرية الذكاءات المتعددة.
32- لندا وبروس كامبل، ودي ديكينسون (1996): التعليم والتعلم من خلال نظرية الذكاءات المتعددة.
33- كريستيسون (1996): تدريس وتعلم اللغات من خلال الذكاءات المتعددة.
34- ج. كونان، س. شلتون (1992): ثقافة التباين، نموذج التعلم متعدد الأبعاد للراشدين.
35- رنييه دياز لوفيير (1999): الألوان خارج الخطوط تطبيقات نظرية الذكاءات المتعددة والابتكارية في التعلم.
36- مدارس ومعاهد نيو ستي (1994): احتفالات الذكاءات المتعددة.

37- جلاسجو (1997): دعنا نخطط، ونوضح ذلك. عطلة الأحلام.
38- جيربج مادلين (1997):7 رحلات إلى خريطة الرموز: تطبيقات الذكاءات المتعددة في مجال تعلم خرائط العقل.

39- توماس هاتش (1997): خصوصية الذكاءات المتعددة.

40- فالون (1996): انعكاسات التربية داخل العمل.

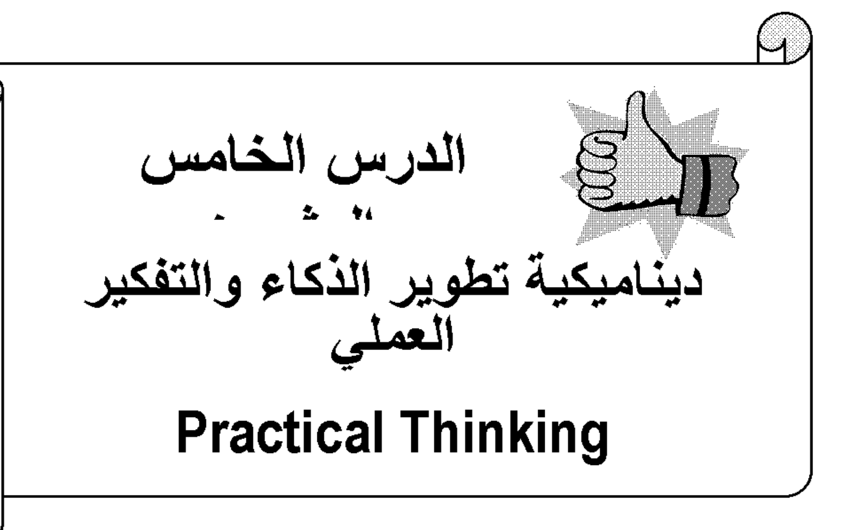
41- لونج، بوين (1995): تعليم التلاميذ السيطرة على التعلم.

42- أ. سافي (1996): قاموس الذكاءات المتعددة ومفرداتها.

43- سما جورنسكي (1991):: تعبيرات الذكاءات المتعددة داخل فصول اللغة الإنجليزية: النظرية والبحث والممارسة.

44- تايلور وشيلا (1977): استخدام الذكاءات المتعددة والإحساس المتعدد كمدخل لتحسين مهارات الأميين.

45- مواد تدريبية للمعلمين: أحسن وأفضل أنشطة لممارسة الذكاءات المتعددة.



التعريف:

هو بمثابة مجموعة من المواد والأساليب التدريسية المصممة على نحو مقصود لتعزيز تطوير عمليات التفكير والشعور.

الجمهور المستهدف:

1- كل التلاميذ.

2- كل التلاميذ الموهوبين (حيث يقدم لهم تدريب أساس، إضافي إلى مستوى متقدم من الخبرات وفقاً لقدرات الفرد واهتماماته.

الأهداف:

1- تطوير المهارات العامة الخاصة بالتفكير الإبداعي وحل المشكلات والتفكير الناقد.

2- تطوير العمليات الوجدانية مثل: الإحساس والتذوق والتقييم.

3- تطوير مجموعة واسعة من مهارات "كيف نتعلم" مثل كتابة مذكرات مختصرة وإجراء مقابلات، وتصنيف البيانات، وتحليلها، والوصول إلى استنتاجات ... الخ.

4- تطوير مهارات تتعلق بالاستخدام المناسب لمصادر من المستوى المتقدم مثل الـ Readers guides ودليل الباحثين، وملخصات، وملخصات الأبحاث وبرامج الكمبيوتر والإنترنت .... الخ.

5- تطوير مهارات اتصال كتابية وشفاهية وبصرية تكون موجهة تكون موجهة أساساً نحو رفع مستوى تأثير نتاجات الطلاب على الجمهور إلى حده الأقصى.

المفاهيم (أو التصورات) الأساسية:

1- تصنيف لتطوير مهارات التفكير وعملياته.
2- منحنى المجال والمتابعة Scope & Sequence Approach لتنشيط عملية التطوير.
3- التوجيه من خلال الأساليب، والتوجيه من خلال المواد.

أشكال النشاط:

1- مصفوفة تخطيطية تتعلق بتنظيم وتدريس مهارات النمط الثاني من أنماط الإثراء.
2- توفير أوراق عمل لاختيار المواد والنشاطات الخاصة بالتخطيط للنمط الثاني.
3- شكل خاص (بطاقة خاصة) لتحديد مواد الإثراء.



(1) الإبداع: تطوير وممارسة الاستخدام لـ	أساليب التعديل
• الطلاقة	• التكبير
• المرونة	• التصغير
• الأصالة	• الإبدال
• التفصيل	• الاستخدامات المتعددة
• العصف الذهني	• إعادة التنظيم
• العلاقات الإجبارية	• الدمج
• وضع قوائم الخصال	• العكس أو القلب
• التخيل (الفانتازيا)	
• الخيال (التفكير بالصور	
• الترابط أو التداعي	
• المقارنة	
• القيام بمخاطرات	

(2) حل المشكلات الإبداعية واتخاذ القرار: تطوير وممارسة الاستخدام لـ

الحل الإبداعي للمشكلات	اتخاذ القرار
• اكتشاف جوانب القصور أو النقص	• تقرير الأهداف المرغوبة والشروط المرتبطة بالقرار الذي ينبغي اتخاذه.
• اكتشاف الحقائق	• تقرير العقبات لإدراك الأهداف والشروط.
• اكتشاف المشكلة	• تحديد البدائل المتاحة للتغلب على عقبه.
• اكتشاف الفكرة	• فحص البدائل في ضوء الشروط والمصادر والنفقات والقيود الزمن.
• اكتشاف الحل	• ترتيب البدائل في ضوء الشروط والمصادر والنفقات.
• اكتشاف التقبل للحل	• اختيار أفضل البدائل
	• تقييم الأفعال الناتجة عن القرار.

الدرس السابع والعشرين

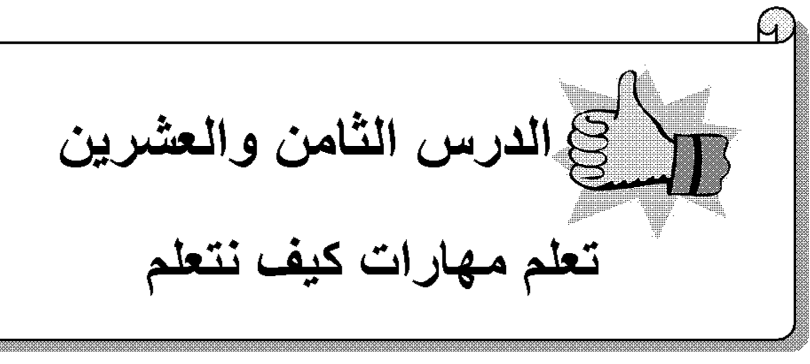
رحلة بين الذكاءات: النقدي - الوجداني - المنطقي

(1) التفكير الناقد والمنطقي

- الاستدلال الشرطي أو المنطقي
- الغموض
- الأغلوطات
- تعريف الحدود
- الافتراضات التصنيفية
- اختيار المصداقية (أو الصدق)
- صفحات التدفق (البرمجة بالكمبيوتر)
- الاستدلال الاستقرائي
- الاستدلال الاستنباطي
- القضايا المنطقية
- اختيار الثبات
- الترجمة
- التفسير
- الاستخلاص
- التنميط
- التتابع
- المتناظرات
- الاستنتاجات
- الاحتمالية
- المعضلات
- المفارقات
- التصنيف
- تحليل لـ:
  - المحتوى
  - العناصر
  - الاتجاهات والأنماط
  - العلاقات
  - المبادئ المنظمة
  - الدعاية والتحيز

(2) الذكاء الوجداني

- افهم نفسك
- افهم الآخرين
- العمل مع الجماعات
- العلاقات مع الأقران
- العلاقات مع الوالدين
- توضيح القيم
- الاستدلال الأخلاقي
- الأفكار النمطية حول الدور الجنسي
- التدريب على تأكيد الذات
- سلوكيات المواجهة للضغوط
- تحليل جوانب القوة الخاصة بك
- التخطيط لمستقبلك
- الاتصال الشخصي مع الآخرين
- الكشف عن الفهم للآخرين
- الاعتماد على النفس
- التعامل مع الصراع
- تطوير الثقة بالنفس
- تطوير حس الفكاهة
- التعامل مع الخوف والقلق ومشاعر الذنب
- التعامل مع المجهول

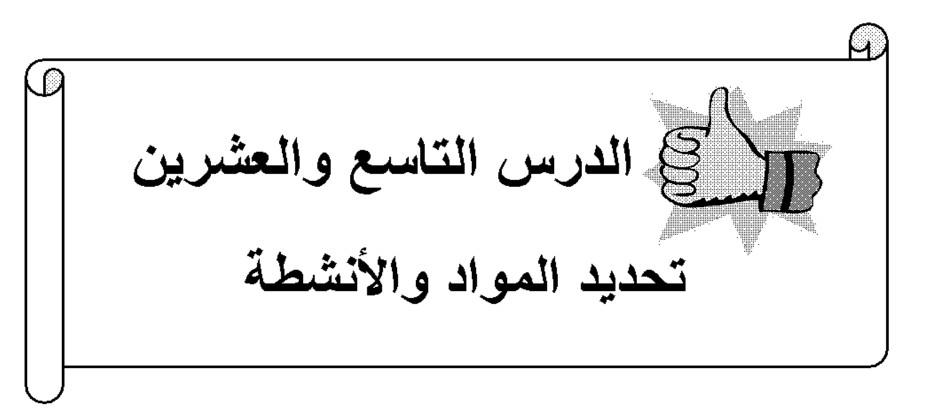


(أ) الاستماع والملاحظة والإدراك، وتطوير وممارسة الاستخدام لـ:-

- متابعة الاتجاهات.
- ملاحظة تفاصيل معينة.
- فهم النقاط والموضوعات المتكررة والسلاسل الرئيسية.
- عزل أو فصل المعلومات المناسبة عن المعلومات غير المناسبة.
- الاهتمام أو الانتباه لعلاقات الكل بالأجزاء.
- الإحاطة بـ "الصورة الكلية"
- التركيز على عناصر بعينها.
- طرح الأسئلة من أجل التوضيح.
- طرح الأسئلة المناسبة.
- الوصول إلى استنتاجات.
- ملاحظة الفروق الدقيقة بين العناصر.
- التنبؤ بالنتائج المترتبة.
- تقييم وجهة نظر المتحدث.

(ب) كتابة مذكرات موجزة (ملاحظات) والتلخيص، تطوير وممارسة الاستخدام لـ:-

-
- كتابة ملاحظات موجزة.
- اختيار المفاهيم والمصطلحات والأفكار الأساسية.
- إهمال المعلومات غير الهامة.
- ملاحظة ما يجب أن يتم تذكره.
- تسجيل الكلمات والتواريخ والأشكال التي تساعدك على تذكر المعلومات الهامة.
- مراجعة المذكرات أو الملاحظات المكتوبة ووضع خطوط تحت أكثر البنود أهمية.
- تصنيف الملاحظات بشكل منطقي.
- تنظيم الملاحظات بطريقة تجعل من الممكن لاحقاً إضافة معلومات من مصادر أخرى إليها.



استمارة اختيار المواد والنشاطات

الصف الدراسي: .... **الموضوع أو الموضوعات:**

....

	غرفة الإثراء	الصف الدراسي العادي	
		النشاطات الجمعية	**النشاطات المختارة ذاتياً**
(1) التدريب المعرفي			
1- مهارات التفكير الإبداعي			
2- حل المشكلات الإبداعية وإصدار القرارات			
3- التفكير الناقد والمنطقي			
(2) التدريب الوجداني			
المهارات الوجدانيـة			

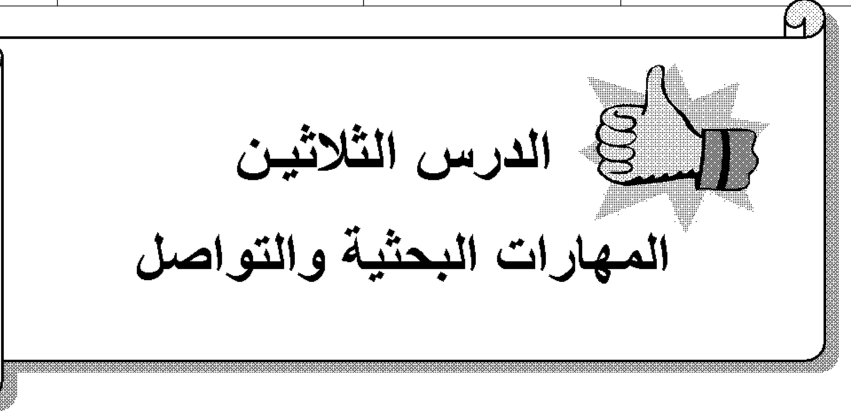
استمارة اختيار المواد والنشاطات

الصف الدراسي: .... **الموضوع أو الموضوعات:**

....

	غرفة الإثراء	الصف الدراسي العادي	
		النشاطات الجمعية	**النشاطات المختارة ذاتياً**
(3) مهارات تعلم كيف ـ نتعلم			
1- الاستماع والملاحظة والإدراك			
2- القراءة وكتابة المذكرات المختصرة والتلخيص			

3- القيام بإجراء المقابلات والدراسات المسحية			
4- تحليل البيانات وتنظيمها			



استمارة اختيار المواد والنشاطات

الصف الدراسي: .... **الموضوع أو الموضوعات:**

....

	غرفة الإثراء	الصف الدراسي العادي	
		النشاطات الجمعية	النشاطات المختارة ذاتياً
(4) استخدام المهارات البحثية المتقدمة والمواد المرجعية			
1- الإعداد لدراسات أو بحوث النمط الثالث للإثراء			
2- مهارات استخدام المكتبة			
3- استخدام مواد البيئة			

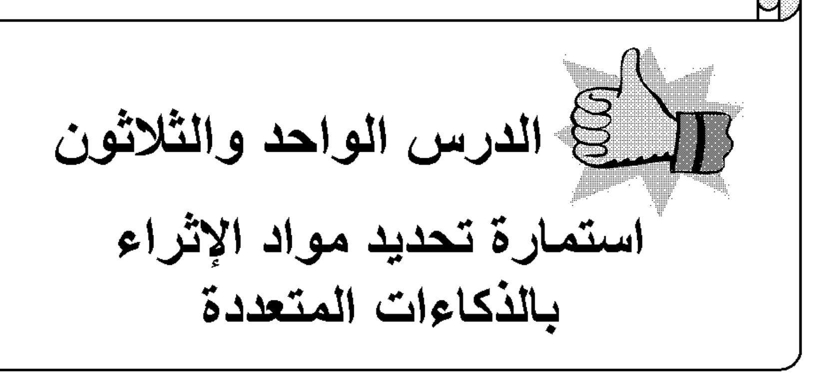
استمارة اختيار المواد والنشاطات

الصف الدراسي: .... **الموضوع أو الموضوعات:**

....

	غرفة الإثراء	الصف الدراسي العادي	
		النشاطات الجمعية	النشاطات المختارة ذاتياً
(5) مهارات الاتصال الكتابية والشفاهية والبصرية			

			1- الاتصال الكتابي
			2- الاتصال اللفظي أو الشفاهي
			3- الاتصال البصري أو الشكلي
			4- تحليل البيانات وتنظيمها



استمارة تحديد مواد الإثراء بالذكاءات المتعددة

ات الكبرى:

ى الكبرى:

مخططة:

العنوان: ....
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الطلب:
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مستويات العمر) ....

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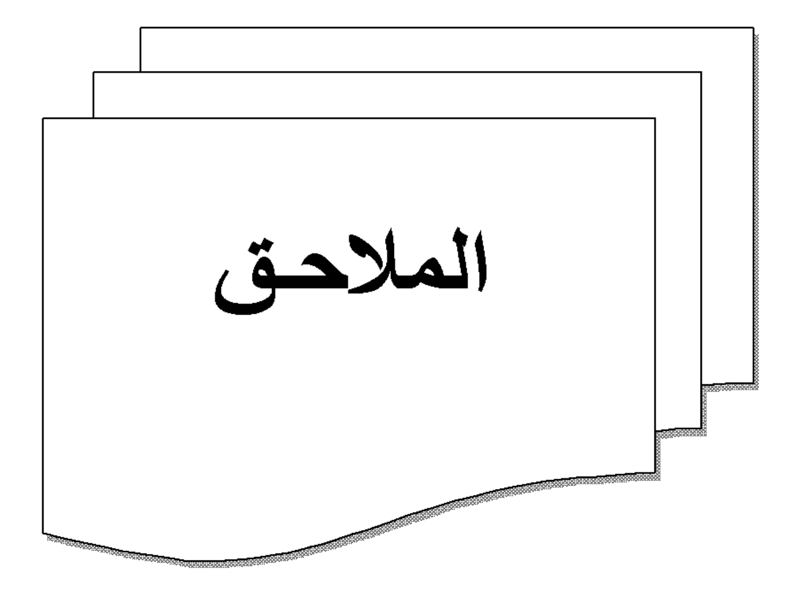
كثر اكتمالاً (أنظر) ....

تدريبات، بطاقات مضيئة، فيديو ... الخ): ....

ات الدراسة في المقرر أو المنهج العادي ذات الصلة بهذه المواد: ....
....

المشاعر التي تنميها هذه المواد: ....
....

....


الملاحق

"enGauge 21st Century Skills"

Digital-Age Literacy

As society changes, the skills needed to negotiate the complexities of life also change. In the early 1900s, a person who had acquired simple reading, writing, and calculating skills was considered literate. Only in recent years has the public education system expected all students to build on those basics, developing a broader range of literacies (International ICT Literacy Panel, 2002). To achieve success in the 21st century, students also need to attain proficiency in science, technology, and culture, as well as gain a thorough understanding of information in all its forms.

***Digital-Age Literacy** includes the following:*

- **Basic Literacy**: Language proficiency (in English) and numeracy at levels necessary to function on the job and in society to achieve one's goals and to develop one's knowledge and potential in this Digital Age.
- **Scientific Literacy**: Knowledge and understanding of the scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity.
- **Economic Literacy**: The ability to identify economic problems, alternatives, costs, and benefits; analyze the incentives at work in economic situations; examine the consequences of changes in economic conditions and public policies; collect and organize economic evidence; and weigh costs against benefits.
- **Technological Literacy**: Knowledge about what technology is, how it works, what purposes it can serve, and how it can be used efficiently and effectively to achieve specific goals.
- **Visual Literacy**: The ability to interpret, use, appreciate, and create images and video using both conventional and 21st century media in ways that advance thinking, decision making, communication, and learning.
- **Information Literacy**: The ability to evaluate information across a range of media; recognize when information is needed; locate, synthesize, and use information effectively; and accomplish these functions using technology, communication networks, and electronic resources.
- **Multicultural Literacy**: The ability to understand and appreciate the similarities and differences in the customs, values, and beliefs of one's own culture and the cultures of others.
- **Global Awareness**: The recognition and understanding of interrelationships among international organizations, nation-states, public and private economic entities, sociocultural groups, and individuals across the globe.

Inventive Thinking

Experts agree: As technology becomes more prevalent in our everyday lives, cognitive skills become increasingly critical. "In effect, because technology makes the simple tasks easier, it places a greater burden on higher-level skills" (International ICT Literacy Panel, 2002, p. 6).

- **Adaptability and Managing Complexity**: The ability to modify one's thinking, attitude, or behavior to be better suited to current or future environments; and the ability to handle multiple goals, tasks, and inputs, while understanding and adhering to constraints of time, resources, and systems (e.g., organizational, technological).
- **Self-Direction**: The ability to set goals related to learning, plan for the achievement of those goals, independently manage time and effort, and independently assess the quality of learning and any products that result from the learning experience.
- **Curiosity**: The desire to know or the spark of interest that leads to inquiry.
- **Creativity**: The act of bringing something into existence that is genuinely new and original, whether personally (original only to the individual) or culturally (where the work adds significantly to a domain of culture as recognized by experts).
- **Risk Taking**: The willingness to make mistakes, advocate unconventional or unpopular positions, or tackle extremely challenging problems without obvious solutions, such that one's personal growth, integrity, or accomplishments are enhanced.
- **Higher-Order Thinking and Sound Reasoning**: The cognitive processes of analysis, comparison, inference and interpretation, evaluation, and synthesis applied to a range of academic domains and problem-solving contexts.

Effective Communication

According to the 21st Century Literacy Summit (2002), "Information and communications technologies are raising the bar on the competencies needed to succeed in the 21st century" (p. 4). Both researchers and the business community agree: Effective communication skills are essential for success in today's knowledge-based society. The 1991 SCANS report, for example, lists the following as necessary for success in this area: participating in a team, teaching others new skills, serving clients and customers, exercising leadership, negotiating, and working with diverse groups of people (SCANS, 1991, p. 81). Information technology can play a facilitative role in effective communication, but emerging technologies also can present ethical dilemmas. As information and communication technologies become more pervasive in society, citizens will need to manage the impact on their social, personal, professional, and civic lives.

Effective Communication *involves:*

- **Teaming and Collaboration**: Cooperative interaction between two or more individuals working together to solve problems, create novel products, or learn and master content.
- **Interpersonal Skills**: The ability to read and manage the emotions, motivations, and behaviors of oneself and others during social interactions or in a social-interactive context.
- **Personal Responsibility**: Depth and currency of knowledge about legal and ethical issues related to technology, combined with one's ability to apply this knowledge to achieve balance, integrity, and quality of life as a citizen, a family and community member, a learner, and a worker.
- **Social and Civic Responsibility**: The ability to manage technology and govern its use in a way that promotes public good and protects society, the environment, and democratic ideals.
- **Interactive Communication**: The generation of meaning through exchanges using a range of contemporary tools, transmissions, and processes.

High Productivity

According to leading researchers, caution should be exercised when attempting to link high-stakes testing and high standards to the creation of a productive workforce (Levin, 2001). Levin's studies in the 1990s led him to conclude that how well students do on current tests in no way correlates to how productive they will be in the workforce.

High productivity *currently is not a high-stakes focus of schools, yet the skills involved in this cluster often determine whether a person succeeds or fails in the workforce:*

- **Prioritizing, Planning, and Managing for Results**: The ability to organize to efficiently achieve the goals of a specific project or problem.
- **Effective Use of Real-World Tools**: The ability to use real-world tools-the hardware, software, networking, and peripheral devices used by information technology (IT) workers to accomplish 21st century work - to communicate, collaborate, solve problems, and accomplish tasks.
- **Ability to Produce Relevant, High-Quality Products**: The ability to produce intellectual, informational, or material products that serve authentic purposes and occur as a result of students using real-world tools to solve or communicate about real-world problems. These products include persuasive communications in any media (print, video, the Web, verbal presentation), synthesis of resources into more useable forms (databases, graphics, simulations), or refinement of questions that build upon what is known to advance one's own and others' understanding.

Methodology:

The enGauge 21st Century Skills were developed through a process that included literature reviews, research on emerging characteristics of the Net-Generation, a review of current reports on workforce trends from business and industry, analysis of nationally recognized skill sets, input from educators, data from educator surveys, and reactions from constituent groups. Some of these sources are listed below. For a full list of sources and cross-matches to national skill sets, please see the full report at: http://www.ncrel.org/engauge/skills/skills.htm.

- National Education Technology Standards, 2000, International Society for Technology in Education. Available at: www.cnets.iste.org.
- SCANS: What Work Requires of School, 1991, Secretary's Commission on Achieving Necessary Skills, U.S. Department of Labor.
- Standards for Technological Literacy, Content for the Study of Technology, 2000, International Technology Education Association. Available at: www.iteawww.org.
- 21st Century Literacy Summit, 2002, Bertelsmann and AOL Time Warner Foundations, Berlin, Germany. Available at: www.21stcenturyliteracy.org.
- FIT: Being Fluent With Information Technology, 1999, Committee on Information Technology Literacy, National Research Council.
- Information Literacy Standards for Student Learning, 1998, American Association of School Librarians (AASL), Association of Educational Communications Technology (AECT), and American Library Association (ALA).
- Technically Speaking: Why All Americans Need to Know More About Technology, 2002. National Academy of Engineering & the National Research Council. Available at: www.nae.edu/nae/techlithome.nsf.
- Preparing Students for the 21st Century, 1996, American Association of School Administrators.
- Digital Transformation: A Framework for ICT Literacy, 2002. Report by the International Information and Communication Technologies (ICT) Literacy Panel for the Educational Testing Service (ETS). Available at: www.ets.org/research/ictliteracy/index.html.
- How People Learn: Brain, Mind, Experience, and School, 2000. Bransford, J., Brown, A. & Cocking, R., Eds. Available at: www.nap.edu/html/howpeople1/.

References:

International Information and Communication Technologies (ICT) Literacy Panel. (2002). *Digital transformation: A framework for ICT Literacy*. Princeton, NJ: Educational Testing Services (ETS). Retrieved April 11, 2003, from http://www.ets.org/research/ictliteracy/ictreport.pdf

21st Century Literacy Summit. (2002). *21st century literacy in a convergent media world* [White paper]. Berlin, Germany: Author. Retrieved April 14, 2003, from http://www.21stcenturyliteracy.org/white/WhitePaperEnglish.pdf

U.S. Department of Labor. (1999). *Futurework: Trends and challenges for work in the 21st century.* Washington, DC: Author. Retrieved April 13, 2003, from http://www.dol.gov/asp/programs/history/herman/reports/futurework/report.htm.

To Access the Full Publication and Web Resources:

NCREL and the Metiri Group produced a major publication titled *enGauge 21st Century Skills: Literacy in the Digital Age*. This publication provides education, communities, business, and industry with sound information on the 22 skills:

- A definition of each skill.
- A bulleted list of student competencies and characteristics related to each skill.
- Background information, resources, examples, and research related to each skill.
- An addendum containing a continuum of progress for each student competency.

View the publication online at *www.ncrel.org/engauge/skills/skills.htm* or order a print copy through the NCREL Product Order Line at (800) 252-0283 or the NCREL Product Catalog at *www.ncrel.org/catalog/*.

MULTIPLE INTELLIGENCES RESOURCES FOR THE ADULT BASIC EDUCATION PRACTITIONER: AN ANNOTATED BIBLIOGRAPHY

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INTRODUCTION TO
THE AMI ANNOTATED BIBLIOGRAPHY

The fact that MI is a theory of intelligence, not a learning theory or an educational approach, leaves room for interpretation as to its practical applications. It also puts the onus on educators who want to use MI theory well in their own settings to develop a good grounding in the theory and in current MI-based practices. Therefore, studying available literature about MI theory, research, and practice becomes something of a prerequisite to applying the theory well and "in the spirit of" its key features. The goal of this annotated bibliography is to help our colleagues in the adult education field - basic education, ESOL, pre/GED or diploma programs - with their initial search for MI resources that fit their needs.

Of the 200 MI-related resources initially previewed, we identified the 45 included in this bibliography as pertinent or informative to our target audience. As readers are probably well aware, there are scant resources available about MI theory for adult basic education. Therefore, a search for resources helpful in applying MI theory in this field has to go beyond the bounds of resources geared specifically to adult education. Fortunately, many ideas and activities can be generalized beyond the original contexts from which they emerged. We have included any resource, no matter what the originating context, that is relevant or useful or has been recommended and used by AMI teachers or other colleagues. The annotations are organized in three categories:

MI Theory

This section includes books and articles that focus on the theory of multiple intelligences, such as Dr. Gardner's original texts. A range of more to less scholarly presentations of MI theory are included. Items typically include references to implications and examples of MI theory in practice.

MI Research Projects

In this section we share articles and reports presenting research findings of MI-based studies. These resources describe specific applications of MI theory in schools and report findings such as the effect of MI theory in the classroom, attitudes toward MI theory, and levels of MI implementation.

MI Practices

Entries in "MI Practices" focus on implementation. Some emphasize frameworks or formats for using MI theory, while others primarily present collections of activities.

These category designations suggest the primary focus of each work, be it theory, research, or practice, rather than define its exclusive topic. For example, every article, report, and book listed here includes an introduction to MI theory, of varying length and detail. But only those items listed in the "MI Theory and Implications" category focus on the theoretical. We encourage readers to at least peruse all three sections, as the "perfect" resource may be in a section one might not have anticipated. Please visit our web site if you would like to make recommendations for additions to future versions of the annotated bibliography (http://pzweb.harvard.edu/ami).

MULTIPLE INTELLIGENCES THEORY

1- Armstrong, T. (1993). Seven kinds of smart: Identifying and developing your many intelligences. New York, NY: Penguin Books.

Thomas Armstrong's Seven Kinds of Smart is a good "primer" for the individual, layperson and educator alike, who is interested in learning more about MI theory. In Chapter One, Armstrong explains MI theory and provides a "multiple intelligences checklist" for readers to use in self-reflection. Chapters Two through Eight present each of the [original] seven intelligences in some detail, including ideas and exercises aimed at helping the reader understand that particular intelligence and how it operates in the real world.

The last four chapters present MI theory from different vantage points. Chapter Ten focuses on identifying and dealing with various challenges associated with learning and includes a "learning difficulties checklist." Chapter Eleven is directed at matching career goals to intelligence profiles, while Chapter Twelve uses MI theory to describe "harmonizing thinking styles" in personal relationships. Armstrong ends with a chapter discussing the "intelligences of the 21st century".

Seven Kinds of Smart presents MI theory in a "self-help" way, discussing the theory in simple language. It offers a basic framework by which readers can consider themselves from an MI perspective and understand MI at work. Teachers at all levels have used Armstrong's book. Accessible to the non-academic reader, it is a good starting point for those interested in identifying and understanding the intelligences described by Gardner.

2- Gardner, H. (1993). Frames of mind: The theory of multiple intelligences (10th anniversary ed.). New York, NY: Basic Books.

In 1983, Howard Gardner introduced his theory of multiple intelligences with the publication of Frames

of Mind. The 10th anniversary edition carries a new Foreword and updates, including more recent insights from brain research. The book is divided into three parts: Background, The Theory, and Implications and Applications. In Part I, Gardner describes how he came upon the idea of multiple intelligences and juxtaposes MI against earlier views of intelligence. He also includes a chapter on the biological foundations of the theory, ending with a chapter detailing and clarifying what "intelligence" is from an MI perspective.

The first six chapters of Part II are devoted to presenting each of the seven [original] intelligences in detail These chapters describe the nature and characteristics of each intelligence, as well as how each fits the criteria for inclusion as an intelligence. Gardner follows this with a critical examination of MI theory. He compares multiple intelligences with other theories of human cognition, asking what it is that MI theory accomplishes or omits and how the theory could be expanded. Part II ends with a chapter about symbols, symbolic products, and symbolic systems as vehicles to bridge anthropology and biology, the two domains that provide us with the central insights into the nature, range, and limitations of human intellectual ability. He also presents alternative approaches to intelligence, such as Piaget's and Chomsky's.

Part III represents Gardner's initial foray into the implications of MI theory in regard to education. In the first chapter, he offers a framework for analyzing a range of educational processes. Gardner arrives at three prototypical types of learning: the acquisition of specialized skills in a non-literate society, the attainment of literacy in a traditional religious school, and the transmission of a scientific curriculum in a modern secular school. The final chapter builds on the analytic framework, explaining why some educational efforts are successful and others are not. Gardner includes MI-related pointers for policy makers, touching upon such topics as assessing intellectual profiles and curriculum planning.

As a primary text, Frames of Mind is requisite for those seeking the most detailed explanation of the evolution of MI theory and of each of the seven original intelligences. The 1993 edition is recommended because it includes some important updates regarding Gardner's evidence base and his own understanding of the theory.

3- Gardner, H. (1993). Multiple intelligences: The theory in practice. New York, NY: Basic Books .

Published ten years after Frames of Mind, Multiple Intelligence: The Theory in Practice is meant to present a "state of the art" snapshot of the MI-informed educational landscape. Through a collection of essays, Gardner explains how MI works in practice by examining MI-based efforts in schools and formal research projects that have emerged in the intervening years between introduction of the theory and publication of this book (1983-1993).

The book is divided into four parts. Part I begins with "The Theory of Multiple Intelligences" which provides MI background information in a more conversational, narrative style. In Part II, "Educating the

Intelligences," Gardner presents examples of educational applications of MI theory, including the Key School, the first school to seriously embrace MI. Gardner also describes the MI- related research work carried out by his Harvard Project Zero, highlighting Project Spectrum, which researched and developed MI-based approaches in early education.

Part II ends with an "interlude" regarding the obstacles and opportunities involved in implementing MI-informed programs.

Part III, "Assessment and Beyond," presents an alternative to standardized testing, a portfolio approach to college admissions. Gardner argues that any educational mission should emphasize and support the development of student understanding. That includes recognizing the unique collections of strengths that students bring to the learning situation, as well as providing different kinds of learning experiences and ways to mobilize their strengths.

In the final section, Part IV, "The Future of Work on Multiple Intelligences", Gardner presents MI theory in the context of other efforts to conceptualize intelligence and considers where MI theory might be headed in the future. The 55- page appendices provide an assortment of resources, including related articles authored or co-authored by Dr. Gardner, and other works about the MI theory. (Updated and greatly expanded appendices can be found in Gardner's Intelligence Reframed, 2000.) The research-to-practice connections made in the book make it a particularly valuable resource.

4- Gardner, H. (1993, Fall). "Choice points" as multiple intelligences enter the school. Intelligence Connections, 3(1), 1, 3, 7-8 .

In this article, Gardner describes "...the major 'choice points' encountered in the transporting of MI ideas from the ivory tower into the classroom" over the ten years since the theory's introduction. It is one of Gardner's first retrospective pieces on the application of MI theory. He begins by identifying seven educational purposes for which MI theory has been applied, such as personalizing education and promoting more authentic modes of assessment.

Gardner presents the choice points within the familiar categories of curriculum, instruction, and assessment. He describes the implications of a theory that assumes all students possess a full array of intelligences represented in unique individual profiles. Gardner points out that MI theory has been used to support a range of educational goals, and it has been embraced by a variety of educators, including those who work with children in gifted and LD programs. He concludes with suggestions for educators who are considering adopting MI theory into practice. Easy to read, this article is a useful summary of Gardner's earlier thinking about the educational implications of his theory.

5- Gardner, H. (1995, November). Reflections on multiple intelligences: Myths and messages. Phi Delta Kappan, 200-209 .

In "Reflections On Multiple Intelligences," Gardner looks back on MI theory and practices twelve years after the theory's introduction and about six years after the initial attempts by schools to apply MI. A major portion of the article challenges several "myths" that have emerged regarding MI theory. For example, in response to the myth that they are one and the same, Gardner distinguishes between MI theory and learning style approaches. Similarly, he counters other myths, such as a belief that each intelligence calls for a test and that MI theory is not empirically based.

After challenging each of these myths, Gardner offers contrasting "realities". He also points out areas of potential misunderstanding. Gardner concludes with suggestions for ways that multiple intelligences theory can be most effectively utilized, including fostering socially-valued talents and personalizing education. This article is a clear and useful update on MI theory based on a decade's reflection by Gardner. It provides cautions against common pitfalls of MI implementation while offering several helpful pathways to its application.

6- Gardner, H. (1996, November). Probing more deeply into the theory of multiple intelligences. NASSP Bulletin, 1-7.

Gardner reflects on the status of multiple intelligences theory in contemporary academia. Recognizing that students of his theory have exhibited various depths of understanding, he asserts that more superficial interpretations have led to several misconceptions about the theory. For example, one myth suggests seven tests should be developed to assess each of the [original] intelligences, while another equates multiple intelligences with learning style. Gardner counters each myth with a complementary "reality" of MI theory.

Gardner presents some educational implications of the theory, noting that the most profound impact of the theory is dispatching with the notion of the mind as an "all purpose facility." Perhaps the article's strongest point is Gardner's discussion of the assessment of multiple intelligences. He argues that it is next to impossible to create definitive or pure profiles of students' intelligences, beyond assessing proficiency in different tasks. Additionally, there is no sure way of determining which intelligence is being utilized to complete a task, nor whether an adequately comprehensive set of appropriate tasks has been employed. Although Gardner sees value in understanding students' areas of strength, he downplays the possibility, and necessity, of obtaining definitive profiles of intelligence. This article is most informative regarding Gardner's thoughts on MI assessment.

7- Gardner, H. (1996). Are there additional intelligences? The case for naturalist, spiritual and existential intelligences. In J. Kane (Ed.), Education, information and transformation. Upper Saddle River, NJ: Prentice-Hall .

In this writing, Gardner considers the evidence for new, candidate intelligences: naturalist, spiritual, and existential. The article (and its sister chapter in Gardner's Intelligences Reframed) is a detailed look at how intelligences are identified. Using his eight criteria to consider candidate intelligences, Gardner checks each of these proposed intelligences to determine whether they meet these standards. The evidence for a naturalist intelligence is strongest, according to Gardner. Naturalist intelligence involves core abilities valued in many cultures, with evidence in brain research for an independently functioning naturalist intelligence.

Gardner argues that the case for spiritual and existential intelligences is far more complex. Certain individuals, according to Gardner, have a capacity to be "in touch with the cosmos" and "make those around them feel as if they have been touched." Representing something of a reconfigured spiritual intelligence with a decidedly cognitive aspect, existential intelligence is exemplified by a person's ability to confront "ultimate" issues. Those who ponder the meaning of life, death. the fate of the world, etc., may tap into this type of intelligence. Gardner effectively adds the naturalist intelligence to his list of intelligences, but dismisses spiritual intelligence because it does not meet his established criteria for isolating an intelligence. The debate over existential intelligence continues until the time that brain research suggests a separate existential ability.

Gardner does not claim ownership of the right to determine whether or not a given capacity should be considered an intelligence. He does stand by his eight criteria as a means for assessing the merits of each candidate's intelligence. encouraging others to test such abilities against the list. This article's greatest strength is in giving a close-up picture of the process by which an ability is deemed an intelligence.

8- Gardner, H. (1997). Multiple approaches to understanding. In C. Reigeluth (Ed.), Instructional-design theories and models. Vol. 2: A new paradigm of instructional theory. Mahwah, NJ: Lawrence Erlbaum.

Gardner suggests that, before entering into an intelligible discussion about how to teach, educators need to know what they want to teach and why. Gardner argues that education should focus on enhancing a student's understanding of the many facets of our world. According to Gardner, true understanding is measured through observable action, not mind/brain representations of knowledge. Reading, writing, and other basic skills should be seen as tools for learning, not the final goals. Gardner suggests shifting the goal of education from mastery of content to student performance representing comprehension of content; that is, he recommends that students create a public display of applied knowledge, something he refers to as

"assessment of understanding".

Gardner says that although obstacles to understanding are ubiquitous, there are four promising approaches to understanding. The first is to study institutions that have been successful in linking understanding and application, such as the apprenticeship model. Another approach is to examine each obstacle directly, in an effort to "come to grips" with one's own misunderstandings. A third is "teaching for understanding," a method developed by Gardner and his colleagues, while a fourth suggests using MI theory to enhance understanding.

Gardner presents how MI theory might appropriately be used as a tool for instruction aimed at understanding. He asserts that MI theory is most useful in the service of two educational goals: the achievement of specific adult roles that are valued by a society and the mastery of certain curriculum or disciplinary materials. Gardner talks about three ways to use MI theory to approach understanding goals: applying the entry point approach, incorporating "telling analogies," and using MI theory to "approach the core." This article is an excellent resource for those who are interested in Gardner's concept of understanding and MI's application in relation to understanding.

9- Gardner, H. (1999, February). Who owns intelligence? The Atlantic Monthly, 67-76.

Is intelligence singular or are there several intellectual faculties? Is intelligence inherited? Are intelligence tests biased? Gardner identifies these questions as three of the most controversial questions facing psychologists who study intelligence. He discusses the historical shift that has occurred in our understanding of intelligence. This shift began in fields such as anthropology, where the parochialism of the Western view of intelligence is noted, and among neuroscientists who were skeptical that the idea of a single or unitary form of intelligence could be consistent with the complex structure of the brain. Gardner traces this shift in thinking in psychology. citing individuals such as Yale Psychologist, Robert Sternberg who has published numerous articles expanding the notion of intelligence to "practical ability" and "creative intelligence." Gardner then explains how his own work on multiple intelligences has played a role in changing the common conception of intelligence.

Gardner describes MI theory as being based on two questions: the first evolutionary, "How did the human mind/brain evolve over millions of years?" and the second, comparative in nature, "How can we account for the diverse skills and capacities that are or have been valued in different communities around the world"?

Gardner defines three sets of struggles between opposing forces in the intelligence debate: 1) "traditionalists" who believe in a single form of intelligence vs. progressive pluralists who believe there are many forms of intelligence; 2) traditional vs. progressive modes of assessment; and 3) the relationship between intelligence and those qualities we typically value in human beings. He predicts that the most

heated battles surround the expanding definition of intelligence. Although Gardner agrees that redefining the boundaries of intelligence is a positive development, he acknowledges that this process poses the risk of promoting an "anything goes" way of thinking that might lead to the consolidation of all the new intelligences into a singular "new intelligence".

"Who Owns Intelligence" is an excellent resource for those interested in the place MI theory holds within the broader debate around intelligence, as well as the theory's role in reshaping our common understanding of intelligence.

10- Gardner, H. (1999). Intelligence reframed. New York, NY: Basic Books.

Published in 2000, Intelligence Reframed represents Gardner's most in-depth considerations of MI in theory and practice. He begins by positioning MI theory within the historical debate regarding the conceptualization of intelligence. Gardner introduces MI theory with personal reflections that link his emerging idea of intelligence with the trajectory of his own life and scholarship.

From there, Gardner examines MI-related issues that have arisen since the theory was first introduced: the existence of additional candidate intelligences and the myths that have evolved because of misunderstandings regarding MI. Additionally, he discusses several other topics that have sparked controversy in the educational community: assessment, creativity, and the nature of understanding.

The book ends with over 60 pages of appendices which provide an array of MI-related resources and contacts. It is an excellent resource for those wanting a comprehensive update on MI directly from the theory's architect. (Note: Intelligence Reframed includes reformulations of four articles described in this bibliography: "Reflections on Multiple Intelligences," "Are There Additional Intelligences"? "Multiple Intelligences for Understanding," and "Who Owns Intelligence?" See entries #5, #7, #8, and #9).

11- Kahn, David (1996, Spring). The theory of multiple intelligences: In support of Montessori. NAMTA Journal, 21(2), 1-4.

This short piece, along with the collection of papers it introduces from a November 1995 NAMTA conference entitled "Multiple Intelligences: Enhancing Montessori Practice," represents a thoughtful journey into the juxtaposition of Montessori and MI theory. In understanding MI theory through the lens of another theoretical perspective, our understanding of MI theory is deepened.

Kahn unites the missions of MI advocates and Montessorians as "joined by wanting to broaden the pathways to learning, to widen the range of performances measured and valued by the educational community." Kahn does an excellent job of concisely presenting the key points of the journal contents. However, the full journal is recommended for a deeper understanding of MI theory through the lens of Montessori.

12- Krechevsky, M., & Seidel, S. (1998). Minds at work: Applying multiple intelligences in the classroom. In R. Sternberg & W. Williams (Eds.), Intelligence, instruction, and assessment. Mahwah, NJ: Lawrence Erlbaum.

Written by two long-time colleagues of Howard Gardner, "Minds at Work" is a thoughtful presentation of MI theory and practice. The authors begin with a concise introduction to MI theory, including its evolution and key features. The section ends with a brief consideration of common misconceptions assigned to MI theory.

The article then moves to implications of MI theory for instruction. The authors elaborate on four important implications they believe MI theory holds for classroom instruction: individualizing students' education, teaching subject matter in more than one way, project-based learning, and arts-infused curriculum. The authors draw on research projects that they and their colleagues have conducted over the past two decades. This section closes with a brief description of common misuses of the theory in practice.

The authors then move to a substantive discussion of assessment through an MI lens, describing four principles for designing assessments, including the importance of making available multiple ways to demonstrate understanding. This is followed by a discussion of the implications of MI theory for professional development. In conclusion, the authors pose pertinent questions regarding curriculum, instruction, and assessment, such as, "Are students given the opportunity to make choices that reveal their intellectual proclivities and ways of thinking"? Written in a "reader friendly" style, this article is a comprehensive, concise discussion of MI theory and its implications.

13- Maker, J. (1994, Fall). Authentic assessment of problem solving and giftedness in secondary school students. The Journal of Secondary Gifted Education, 19-29.

According to June Maker, a problem is defined as "a question or situation that presents doubt, perplexity, or difficulty" that involves "working or figuring out". Maker suggests five "types" of such problems that must to be taken into account when designing and conducting authentic assessment that "discovers the true nature of student abilities".

These problems range from those that are highly structured, asking students to recall or use a specific equation to arrive at a specific answer, to those that are open-ended and non-structured, requiring students to call upon their own creativity in selecting an appropriate answer.

Maker stresses the importance of covering all problem types in order to obtain an accurate assessment of student abilities. Without student access to a variety of assessment methods, the abilities of linguistically and interpersonally intelligent individuals are overestimated, whereas the abilities of less verbal children are

underestimated. Maker also stresses that, to truly benefit students, teachers must share evaluations with them in easily comprehendible terms.

This article is particularly helpful for individuals interested in developing MI - informed assessment systems. It can serve as a reflective tool for educators to examine their current practices and consider how to provide accurate and fair assessments of their students' abilities.

14- McClaskey, J. (1995, Dec.) Assessing student learning through multiple intelligences. English Journal, 56-59.

McClaskey begins by juxtaposing MI theory against more traditional views of intelligence. According to McClaskey, applying MI theory, rather than assuming a traditional approach to intelligence, has far-reaching positive effects for student success in the classroom. For McClaskey, MI's most powerful implication lies in its emphasis on providing opportunities for students to identify and build on their own strengths to create successful learning experiences.

McClaskey's own approach emphasizes offering her middle school students opportunities to understand their own learning process. In specially designed units, she presents the latest research, including topics such as MI theory, learning styles. constructivist theory, and left/right brain dominance. After completing these units, her students are more aware of the learning strategies that best coincide with their particular strengths.

The author devotes the last half of the article to explaining how MI theory can influence the creation of literature units. She ends with a portrait of one student. David, and the positive role her MI approach played in helping him overcome various challenges he faced in school. The article is useful to anyone interested in how teachers can develop ways for their students to reflect upon their learning.

15- Smagorinsky, P. (1995, Feb.). Constructing meaning in the disciplines: reconceptualizing writing across the curriculum as composing across the curriculum. American Journal of Education, 103(2), 160-184.

In this article, Smagorinksy argues against the long-held assumption that writing is a unique method for constructing meaning. He notes that, despite real-world examples of cases where meaning has been constructed through means such as drawing, music, and dance, schools continue to limit art and drama in the standard academic curriculum. English classes look to writing as the sole source of expression and interpretation. It is because of such a critical divide between traditional education and reality that Smagorinsky undertakes the task of presenting evidence that supports more progressive approaches to learning, ones influenced by multiple intelligences theory and semiotics ("any ordered set of signs through

which people in a culture construct meaning").

Smagorinsky offers a review of the psychological research on semiotics and multiple intelligences. His findings suggest "an exclusive focus on writing as a mode of learning limits, rather than enables, students to construct meaning across the curriculum." Offering views by other researchers on the matter, Smagorinsky shows, given alternatives, students get more out of composing (or constructing) a "product" rather than simply writing down their thoughts. This article offers a compelling argument for educators to take action to expand the means by which students are allowed to create meaning out of their learning experience. In effect, this article provides a rationale for MI-based practices.

16- Torff, B. (1996, Spring). How are you smart? Multiple intelligences and classroom practices. NAMTA Journal, 21(2), 30-43.

Torff offers a concise description of MI theory, common misconceptions associated with it, and ways the theory can be intelligently applied in education. Contrasting old and new concepts of intelligence, he raises our awareness of the mistaken assumptions about intelligence as exhibited in society, culture, and consequently, education.

Torff offers a colorful description of Gardner's theory of the eight different intelligences and a lighthearted critique and history of other views of intelligence. He integrates development, culture, and multidisciplinary thinking into his consideration of MI theory and its implications for practice. Throughout the essay, Torff continually compares and contrasts the quantitative, IQ-based approach and the narrative, multidimensional MI approach to intelligence and education, ending with cautions against misusing MI theory in the classroom. This piece is concise and enjoyable reading for those seeking a description of MI theory and a rationale for MI-informed practices.

17- Campbell, L. & Campbell, B. (1999). Multiple intelligences and student achievement: Success stories from six schools. Alexandria, VA: ASCD.

Campbell and Campbell share the stories of six "MI schools," two each from elementary, middle, and high schools. All six schools had implemented MI theory for at least five years. Each setting is described in terms of how MI is applied, its role in engaging parents and community, and its effect on student achievement. Through these case studies, readers see the common threads among the six MI programs, as well as their unique aspects. For example, each of the six schools stressed the personal intelligences, but in different ways, including "character education," giving students extensive time for selected interests and emphasis on the development of the school community.

The book begins with a general discussion of why MI theory is attractive to educators. It also describes the positive effect of MI theory on teachers' beliefs about student intelligences, classroom instruction, and student achievement. After a comprehensive look at the six schools being studied, the authors examine those kinds of schools that value MI and why. They report about the positive effects for students beyond achievement gains, as well as the eleven guiding principles that the authors believe are essential for any successful MI school endeavor. These principles include providing opportunities for students to apply classroom learning in real- world contexts, using students' strengths to improve their academic weaknesses, and encouraging teachers to adjust their instruction based on astute observation of their students' strengths.

Noting that "Gardner's theory proved flexible enough to respond to different intentions," the authors maintain that the application of MI theory can have a positive impact on any K-12 program. For this same reason, the book is a useful resource for teachers of adult students. "Because MI is a construct about human intelligence, it does not mandate any prescriptive educational approach. Thus the teachers and administrators at the six schools had the freedom to create educational practices that best fit their students' and their own needs" (91-2).

18- Carson, D. (1996). Diversity in the classroom: Multiple intelligences and mathematical problem solving (Doctoral dissertation, August, 1996). Dissertation Abstracts International, 57(02), 611 .

In this doctoral research study, Carson investigates instruction in mathematics and problem solving. Carson begins by describing current weaknesses in science and mathematics instruction in the U.S., referring to the body of evidence demonstrating the relatively poor abilities of U.S. students in these areas.

Carson presents multiple intelligences theory as a promising influence on the development of instructional strategies that promote greater understanding of mathematics and increased problem solving abilities.

Teachers with similar backgrounds and training, as well as students demonstrating comparable academic abilities, participated in the study. They were drawn from four fifth grade classrooms in one Florida school. Mathematical problems from the 1992 NAEP Trial State Assessment were integrated into units included in the study. Carson sought to answer research questions centering around the ways that student learn problem solving skills and the best ways to teach these skills.

Covering a six-week time period, Carson's study examined the problem solving instruction of the participating teachers under two conditions, with and without the addition of MI awareness activities. Qualitative and quantitative results indicate a dramatic increase in problem solving abilities in cases where both teachers and students have a heightened awareness of MI theory. Readers interested in how MI can influence math and problem solving instruction will find this study particularly informative.

19- Chen, J. (1992). Building on children's strengths: Examination of a project spectrum intervention program for students at risk for school failure. Unpublished doctoral dissertation, Tufts University, Medford, MA.

Chen conducted this research study under the auspices of Harvard Project Zero's "Project Spectrum." Spectrum was "an effort to provide an innovative approach to assessment and curriculum development for the early years of schooling." Chen examines the effectiveness of a Spectrum intervention program, focusing on those students identified as "at risk" for school failure. A total of over one hundred first - grade students from four Somerville, Massachusetts classrooms participated.

According to the author, 30% of American children are at risk for school failure. Marked by low academic performance, low self-esteem, and frequently limited English proficiency, these students often come from the population of children already disadvantaged by poverty. Typically educators follow the practice of identifying and teaching to student deficiencies. In contrast, the Spectrum researchers and the participating teachers worked together to identify the strengths of students considered at risk. The program then sought to engage these children in activities that built upon their strengths. The study found that at risk students were able to approach classroom learning tasks more positively and more successfully through the Spectrum approach. The report presents an argument for strengths-based instruction at any level.

20- Greenhawk, J. (1997, September). Multiple intelligences meet standards. Educational Leadership, 55, 62-64.

Greenhawk, an elementary school teacher, outlines the rationale behind and results of her school's adoption of multiple intelligences theory as one key element in its reform effort. The initiative was in response to a new statewide performance-based test that requires students to apply basic skills to solve real-life problems. The school adopted MI theory to help students become more aware of their own abilities and those of others. The MI initiative also directed students how to use these abilities for more effective learning, helped students build confidence, provided memorable learning experiences, and enabled teachers to better assess students" mastery of basic skills.

Teachers observed that when they gave students choices in how they processed and demonstrated their learning "students seemed more willing and able to do the research [involved in their work]." The author also asserts that the students became more self-directed and confident in trying out new skills. MI applications, in tandem with test-taking support, resulted in a 20% rise in test scores in one year. That, in combination with a boost in students' confidence, put to rest the doubts of some parents and teachers regarding the value of MI-based practices.

21- Hearne,D. & Stone,S.(1995, Aug./Sept.). Multiple intelligences and underachievement: Lessons from individuals with learning disabilities. Journal of Learning Disabilities, 28(7), 439-448.

Hearne and Stone introduce multiple intelligences as a theory that has been particularly influential in restructuring the way education is delivered in the learning disabilities field. In this article the authors summarize findings from research in their attempts to identify the talents of those students who have been labeled learning disabled. They also present implications of their findings for the schooling of students with LD, closing with a "beginning set" of practical recommendations.

Hearne and Stone set the stage by reviewing the preoccupation with verbal and "logico-mathematical" ability in our standardized and IQ tests, criticizing the overuse of these tests for placement in programs, including tests given to LD students. Indeed, despite growing evidence demonstrating the various strengths and talents of students with LD, generally speaking, LD and giftedness are seen as opposite poles on a continuum, generally precluding LD students from gifted programs. Moreover, special education focuses on identifying weaknesses and on reducing learning into small chunks of information to be fed to students one at a time. Ironically, the common knowledge among special educators is that LD students have talents generally undervalued or not well represented in our curricula, which require linguistic intelligence for access to all knowledge.

The authors propose that an understanding of MI theory is valuable for teachers because it encourages them to examine what learners can do rather than what they cannot, the latter being the current modus operandi of the special education system. They also recommend that educators consider other ways

of identifying giftedness. The authors conclude with ideas for developing teacher training programs and for planning varied instructional strategies for LD-labeled students.

22- Kornhaber, M. & Krechevsky, M. (1994). Expanding definitions of learning and teaching: Notes from the MI underground. In P. Cookson, Jr. &B. Schneider, (Eds.), Transforming Schools. New York, NY: Garland.

Kornhaber and Krechevsky, researchers at Gardner's Harvard Project Zero, report on their study of nine schools using MI theory. In writing the first "MI Schools" study, the authors' primary purpose was simply to observe and articulate what was being done in schools that were in their second year or more of using MI theory. Research activities consisted of interviews and observations. All but one of the selected research sites were elementary schools.

The findings of the study are discussed in three parts: adoption, implementation, and assessment. The authors report that MI theory typically was adopted as one, among numerous theories, to inform school reform efforts. Educators favored the theory because it validates what classroom practitioners already know and do, while lending a "common language" and framework for expanding their good practices.

The authors identified changes in curriculum and school organization as two "interweaving themes" of MI implementation. Changes to curricula included assigning special projects, fostering learning within disciplines, and integrating the arts. Changes in organization involved team-teaching and the "stretching" of roles played by specialists. These changes necessitated flexibility for creative scheduling within the schools.

Finally, the researchers were interested in knowing how schools evaluated MI-based programs, as well as how MI theory altered student assessment. While formal evaluation of the MI programs was limited, most of the schools conducted informal or partial evaluations using questionnaires and/or interviews. The researchers did find that student assessment had been modified at all of the schools as a result of MI implementation. Moreover, teachers reported growing comfort in assessing students' understanding in a wider variety of ways.

This article is particularly useful for individuals interested in implementing MI on a school-wide or programmatic level. It is a useful guide for helping schools organize a team effort based on an understanding of MI theory.

23- Leeper, J. E. (1996). Early steps towards the assimilation of the theory of multiple intelligences into classroom practice: Four case studies (Doctoral dissertation, September, 1996). Dissertation Abstracts International, 57 (03), 1100.

Leeper's case study examines how four teachers, representing grades three, four, five and general music, incorporated multiple intelligences theory into classroom practice. The author collected data through formal and informal classroom observations, teacher and administrator interviews, journal entries, and an examination of the papers distributed to students. Leeper distributed a short questionnaire to other elementary teachers who also had completed the district's staff development training on MI theory.

Looking at teachers' attitudes and practices before and after receiving MI training, Leeper investigated the types of classroom activities presented by teachers, their methods for identifying student strengths, and the teachers' perceptions of student attitudes and academic progress. Leeper also studied changes in classroom climate, organization and instructional planning, and the availability of information and support for teachers.

Leeper found that students were better able to understand complex information and more engaged in their learning as a result of participating in activities that tapped their multiple intelligences. This led the teachers to modify their fact-based testing procedures. Performance assessment, through student created products, emerged as the most effective method of viewing student achievement.

The study suggests that, in order to support teacher implementation, district office and building administrators need to receive the same training as teachers. Following training, teachers must have opportunities for peer coaching, planning and gathering resources to support new initiatives, and reflecting on their work. Leeper's study provides important information for educators who are involved in staff development training.

24- Melrose, R. E. (1997). Examining the strengths of the learning disabled: Multiple intelligences theory as a growth paradigm (Doctoral dissertation, November, 1997). Dissertation Abstracts International, 58(5-A), 1584.

Melrose explores how multiple intelligences theory can influence the development of methods to examine the strengths of the learning disabled. Focusing on the education of the whole child, Melrose maintains that MI-influenced assessment tools stress those things that the learning disabled student is capable of doing, rather than a more traditional assessment that often emphasizes deficits. Melrose sought to uncover general intellectual trends of learning disabled students using MI theory as the theoretical framework and produced user-friendly information that enables teachers to assist students in experiencing success at school.

After collecting data from questionnaires, observations, and interviews, Melrose looked at the "wholeness" and integrity of intelligence. To gain further information about students' strengths, Melrose

contacted parents and teachers of the learning disabled students selected for the study. The study provided data for educators to use in working with learning disabled students. Further, the study offered suggestions regarding ways teachers can use any information they obtain to improve the classroom experience for learning disabled students.

25- Mettetal, G. Jordan, C., & Harper, S. (1997, Nov./Dec.). Attitudes toward a multiple intelligences curriculum. Journal of Educational Research, 91 (2), 115-122.

The Farmington School (pseudonym) is a suburban school with a K-5 student population of 520. Under a new principal (who was also one of the investigators), the school faculty took steps to move from a traditional concept of school organization to one based on MI. They instituted heterogeneously grouped classes, "flow time" (library time, music, art), an activity room, and enrichment clusters.

Research activities to assess the results of the changes included interviews, surveys to parents, and participant observations. The investigators present three major findings: acceptance of the concept of multiple intelligences by teachers, students, and parents; a generally positive reaction to the school-wide implementation of MI-based curriculum; and an uneven implementation of the curriculum across classrooms. Additionally, the investigators expressed surprise at finding that explicit teaching about MI theory itself had an impact on the thinking of teachers and students.

When the investigators conducted a follow-up study, they found that teachers were continuing to implement MI curriculum in their classrooms, with regular discourse regarding MI theory still taking place. Standardized test scores increased dramatically after the first and second years of MI curriculum implementation. This article would be particularly interesting to anyone who is considering how to organize a program based on MI theory.

26- Radford, J. D. (1994). The impact of multiple intelligences theory and flow theory in the school lives of thirteen children (Doctoral dissertation, October, 1995). Dissertation Abstracts International, 56(04), 1233.

Radford explores the impact of MI theory and (Csikszentmihalyi's) Flow theory on the school lives of thirteen children attending the Key School. The youngsters selected for this study met two criteria; they had been enrolled in the first kindergarten class of the school when it originally opened in 1987 and had not attended any other elementary schools by the time they reached fifth grade. Radford explored the school lives of these youngsters from multiple perspectives: the students themselves, their parents, and their teachers. Individual case studies were developed based upon observations, video portfolios, interview data, and school records.

Citing a strong sense of community at the school and the perception by the students and adults that school is an enjoyable experience, Radford found that mutual respect and appreciation for the individual exists at the Key School. Students generally perceived themselves as having strengths and abilities to

share. Metacognition and self-awareness appeared to play a significant role in individual student success. The students who considered their options and reflected on their strengths in relation to their goals appeared most likely to profit from the Key School experience.

Students, teachers, and parents accepted challenges as opportunities for learning. Having choice seemed to enhance motivation and student ownership of the learning process. However, Radford points out one programmatic weakness in regard to the lack of consistent quality in student projects. The Key School's use of projects as a measure of student learning is still evolving. This article provides a captivating "snapshot" of a school's ongoing reform effort using MI theory.

27- Strahan, D., Summey, H., Bowles, N. (1996, Winter). Teaching to diversity through multiple intelligences: Student and teacher responses to instructional improvement. Research in Middle Level Education Quarterly, 43-65.

Through a year-long study conducted at a middle school in North Carolina, three researchers set out to analyze the effect of MI-based instruction in two sixth grade classrooms in which teachers applied the theory to improve their language arts and math instruction. They observed classes, met with teachers, interviewed students. and gathered achievement test data, determining that teachers used MI theory in two essential ways: to encourage students to learn more about their own ways of knowing and to generate instructional activities. Their data suggested two findings: students showed gains on achievement tests coinciding with their participation in MI - informed activities and students had positive perceptions of MI theory.

Teachers and researchers worked collaboratively to develop a "Mindful Learning" approach, defined as integrating into the curriculum opportunities by which students could learn through all seven [original] ways of knowing. Teachers designed instructional strategies that encouraged students to learn more about their own ways of knowing, varying classroom instruction accordingly.

Interviews conducted by the researchers indicated that students used the language of Mindful Learning and could identify different strategies that work particularly well for them. Achievement tests showed gains of almost two grade - level equivalents in reading and three grade-level equivalents in math subsequent to the adoption of this approach. The fact that students in the lowest three quartiles demonstrated significant progress suggested that this approach was especially effective in encouraging achievement among students who, prior to learning this technique, had not experienced consistent success in school. Because it includes many examples of activities the two teachers implemented, this report would appeal to those who want to learn how to design different kinds of MI-informed lessons.

28- Kallenbach, S. & Viens, J. (In press). MI grows up: The AMI sourcebook. New York, NY: Teachers College Press.

The AMI Sourcebook, MI Grows Up, is a resource for adult basic educators who are already considering or integrating MI theory into their practices. Designed and developed by the teachers and co-directors of the Adult Multiple Intelligences (AMI) Study, this sourcebook reflects the culmination of a five-year effort to understand and advance the application of MI theory in adult basic, ESOL, and GED/adult diploma contexts (AMI Study web site, http://pzweb.harvard.edu/ami).

The Sourcebook begins with a foreword by Dr. Gardner and a summary of the AMI Study. Chapter 1, MI Basics, provides a substantive introduction to MI theory and its features from which practical applications are drawn. Chapters 2 and 3 detail the two main categories of MI application that emerged from the study: "MI Reflections" and "MI-inspired Instruction." Each of these two chapters provides a cross-classroom overview of MI Reflections and MI Instruction in action, as well as essays by AMI teachers who discuss the approaches from their own vantage points. The Sourcebook also includes sets of activities and lessons related to each category. Chapter 4, MI Inspired Lessons, is dedicated to the various ways AMI teachers applied MI theory in their instruction. It includes "lesson formats" to apply MI theory, as well as units organized by subject matter (language arts & ESOL, math & science, and thematic units).

The final two chapters of the book take a different tact. Chapter 5 presents students' reactions to MI practices in their classrooms. Included in this chapter is a teacher-authored essay on "multiple ways around resistance." The final chapter presents AMI teacher and staff reflections on teacher research, detailing the role such systematic and collegial reflection played in their professional, and oftentimes personal, development.

The strength of the AMI Sourcebook is that it is written by teachers, for teachers in adult basic education. Crafted and considered under the systematic "watch" of a research study, all the approaches and activities presented in the book were developed and/or applied by the AMI teachers themselves. Of particular value is hearing from the AMI teachers themselves, in their own voices, as they discuss the distinctive ways they applied MI theory. The authors approached the Sourcebook with the goal of creating the MI resource they wish they had had when they first began to consider MI theory's implications for adult education. Because it addresses the real challenges and promises of adult basic education, the Sourcebook is indeed a resource that provides the conceptual and practical material needed and sought by the researchers' peers who themselves are undertaking MI explorations within this field.

29- Armstrong, T.A. (1994). Multiple intelligences in the classroom. Alexandria, VA: Association for Supervision and Curriculum Development.

MI in the Classroom is Armstrong's self-described "nuts and bolts" contribution to MI resources. After the prerequisite historical and theoretical background, Armstrong begins with MI self-reflection activities, noting that "[b]efore applying any model of learning in a classroom…we should first apply it to ourselves as educators and adult learners"(16).

In each subsequent chapter Armstrong focuses on one type of application of MI theory, such as MI teaching strategies or teaching students about MI theory. For each topic, he includes a short introduction, followed by related activities, and concludes with ideas for further study. For example, "Describing Intelligences in Students" begins with a rationale for describing students' intelligences, as well as a cautionary note about how one might approach MI assessment. Related activity suggestions present alternate methods for documentation, including ways to best use student records, and ideas for enhancing communication with parents. "For Further Study" includes specific ideas for teachers to consider when starting to describe students' strengths.

MI in the Classroom is a good basic introduction to MI theory in the classroom. Its strength, describing ways to apply MI theory in several different real school contexts, also evokes a caution. From the perspective of this book, applying MI theory means applying the seven [original] intelligences directly to the context (e.g., seven kinds of discipline, seven ways to demonstrate learning, seven ways to approach a unit, etc.). Applying the intelligences directly is only one way to apply MI theory, but it is sometimes mistakenly assumed to be the only way to apply MI theory. Therefore it merits mention that various other MI-informed approaches to curriculum development, assessment, special education strategies, and so on, do exist. Despite this caution, MI in the Classroom does well what it intends to do. Written in an "easy-to-read" style, it is useful book to use in conjunction with other resources that offer alternate "MI lenses" through which to view classroom application.

30- Baum, S., Viens, J., & Slatin, B. (In press). MI in the elementary classroom: Pathways to thoughtful practice. New York, NY: Teachers College Press.

In Multiple Intelligences in the Elementary Classroom: Pathways to Thoughtful Practice, the authors offer a guided process for learning about MI theory and undertaking MI-informed practices. Organized to encourage regular meetings among two or more individuals working in a team or study group, the book promotes thinking together and trying out new ideas in the classroom. The authors recommend that teachers have regular opportunities to share activities, offer feedback, and give and get support around MI initiatives. In that respect the book can be used as a professional development guide for a team of practicing educators, by individual teachers, or as a textbook in a teacher education or curriculum development course.

The authors provide a unique framework for addressing the question "What does it mean to be "MI-informed?" The Pathways model used in the book introduces MI approaches and activities within the context of a particular goal(s). The pathways are Explorations, Building on Strengths, Understanding, Authentic Problems, and Talent Development. For example, the Building on Strengths Pathway is based on the goal of using MI theory to help students develop literacy skills by using MI-informed "entry points" into the skill area. The primary focus of the Building on Strengths Pathway is to tap into students' areas of strength to help them in academic areas that normally present a challenge to them. The Talent Development Pathway encourages the use of MI theory to create opportunities for students to discover and nurture their special talents. Each of the Pathways provides a different "MI lens" through which to view and enhance one's teaching and learning practices. By experimenting with each of the Pathways, the readers learn about MI theory and its possibilities for application.

While the authors have written the book to be used sequentially by a group of teachers, this strategy for implementation is more a suggestion than a requirement. Each chapter includes a detailed introduction to the Pathway, including its relationship to MI, as well as other theoretical influences. Vignettes from the fictitious "Lincoln School team" provide a continuous story line about one team's application of the pathways. Each chapter also includes something of a "how to" section, providing detailed steps for implementing each pathway. The authors include Thought Questions and Implementation Activities that help readers follow several different avenues while they explore the pathways experientially, with colleagues and students. Each chapter ends with annotated suggested resources. The final two chapters contain supporting resources including reproducible Pathway Guides and dozens of supplemental materials and activities.

This book is particularly recommended for those in the early stages of implementing MI; it is useful for teachers who are identifying their goals for applying the theory, providing the first steps to take in this respect. Although the book is cast as a resource for an elementary school audience, with all examples drawn from K-6, the book and the Pathways model can be used, with some modification, at any level, including adult basic education.

31- Campbell, B. (1994). Multiple intelligences handbook. Stanwood, WA: Campbell and Associates.

As an elementary school teacher who has used MI theory for a number of years, Campbell writes with the personal touch of an educator sharing with his peers. In Part I, "Preparing the MI Classroom," he presents an overview of different models for applying MI (learning centers, whole class instruction, etc.), "daily formats" from one classroom, and ideas and resources for teachers to draw upon as they begin to use MI.

Part II is about sharing MI theory with parents and students; in this section Campbell provides sample materials, including a letter to parents and a self - reflection inventory for students. He opens Part III with a

teacher self-reflection inventory, along with lists of teaching strategies for each intelligence. In the final parts of the book, Campbell offers his ideas on assessment, lesson planning, and curricula, emphasizing MI-inspired projects and units. Throughout each section, Campbell provides various related charts, worksheets, and examples of MI applications, many from Campbell's own classroom.

This handbook is recommended for use in conjunction with other MI resources. Its weakness is in its narrow scope of MI applications, which only addresses a "7 different ways" approach to curriculum and assessment, a limited approach that is not necessarily advisable in all situations. However, when such an application is appropriate, the MI Handbook provides many ideas and frameworks that can be used directly off the page.

32- Campbell, L., Campbell, B. & Dickinson, D. (1996). Teaching and learning through multiple intelligences. Needham Heights, MA: Allyn and Bacon.

Based on their own extensive experiences in elementary through higher education classrooms, the authors of Teaching and Learning Through Multiple Intelligences offer guidance to teachers who are incorporating MI theory into practice. They begin by introducing the [seven original] intelligences in detail, with the first seven chapters singularly devoted to defining each intelligence and describing the learning processes and environments that call upon that intelligence. Each chapter includes a section on technology that enhances that intelligence, ending with a reference list. The authors provide many curriculum ideas, while also encouraging and providing opportunities for teacher reflection.

In the final three chapters, the authors take on the topics of curriculum development, assessment, and "lessons learned" from their investigation of MI pilot efforts. Regarding curriculum development, the authors discuss different interpretations of MI theory and address issues such as lesson planning, projects, apprenticeships and "teaching for understanding." They provide instructional menus and curriculum matrices and go into detail regarding thematically-based learning centers (as implemented by one of the authors). The authors consider assessment of the intelligences and through the intelligences. As in the previous chapters, they provide concrete activity ideas and reproducible frameworks. In the last chapter, the authors share issues raised from MI pilot schools involving such topics as student perception and support for teachers.

Teaching & Learning through Multiple Intelligences provides many ideas and helpful frameworks for educators who wish to apply MI theory. Like several other MI resources, it is limited by a "7 different ways" perspective of MI application. Readers should not assume that MI theory is only applied by creating experiences for each intelligence. Readers are cautioned to seek out other resources in addition to this one to provide a more expansive view of possible MI applications.

33- Christison, M. A. (1996, Fall). Teaching and learning languages through multiple intelligences. TESOL Journal, 6(1), 10-14.

Christison begins with the premise that, because languages are traditionally taught through visual and verbal delivery systems, teachers often miss academic abilities in students who do not possess particular strengths in those areas. In "Teaching and Learning Languages Through Multiple Intelligences," Christison discusses how incorporating multiple intelligences theory into an EFL/ESL curriculum can lead to a more efficient way to reach all students. She recommends that teachers learn more about multiple intelligence theory because it can inspire them to create a classroom that fosters an individualized learning environment in which students are more likely to achieve success.

Christison suggests that teachers evaluate activities in their classrooms to determine which of the seven [original] intelligences each activity enhances. She offers examples of activities that strengthen each intelligence. Emphasizing how important it is to teach students about their own intelligences, she suggests designing activities to help students look inward and become more familiar with the intelligences they possess. She offers several other activities geared at various age groups. In conclusion, Christison presents four stages in ESL/EFL multiple intelligence lesson planning that integrate the intelligences: "awakening" the intelligence, "amplifying" the intelligence, participating in the "what am I" game, and putting the intelligences into the context of the real world. This article is most useful for EFL/ESL teachers who want help in guiding their students through MI reflections or for teachers who are looking for intelligence-specific language learning ideas.

34- Conan, J., Fulghum-Nutters, H., Shelton, S. (1992). Honoring diversity: A multidimensional learning model for adults. Sacramento, CA: California State Library Foundation.

The authors of Honoring Diversity have crafted a practical toolkit for adult literacy tutors, one that provides different approaches for lesson design based on two theories: MI and learning styles. The authors have identified ways for tutors to understand the intelligence strengths, interests and learning styles of adult learners and strategies to develop lessons that build on these characteristics. After opening with a short section on how students learn, as well as the factors that affect learning, such as the physical environment, emotions and culture, the authors focus on learning styles and multiple intelligences. They draw a helpful distinction between the two, offering many suggestions for related activities to develop literacy skills at different levels.

The kit contains a short, 60-page, very readable guide, an audiotape and a set of cards organized into nine categories: 1.) Intelligence involvement; 2.) Skills focus; 3.) GED preparation; 4.) Four-part lesson plan; 5.) Games and activities; 6.) Using music; 7.) Computer-assisted tutoring; 8.) Responding to mistakes; and 9.) Activities dictionary. One of several theoretical influences emphasized in the kit, MI theory is limited in

application to MI-enhanced literacy activities. Apart from language experience stories, few of the suggested activities invite the learners to participate in project work or generate original products, such as drawings, collages, skits, or songs. Despite that weakness, Honoring Diversity is a useful addition to a repertoire of adult literacy tutor training tools, providing a set of "small steps" for initial MI applications.

35- Diaz-Lefebvre, R. (1999). Coloring outside the lines, Applying multiple intelligences and creativity in learning. New York, NY: John Wiley & Sons, Inc.

In his book, Diaz-Lefebvre, a professor of psychology, highlights how he pioneered the use of MI theory at the college level. He opens the book with a brief overview of MI theory and learning in general. Consisting of explanations and examples of 24 MI-based learning options, the heart of the book contains engaging descriptions of learning projects and other practical examples using the (seven original) intelligences. The author includes detailed information about how he integrated MI into his course, including a sample introductory letter to students, a course outline. and grading standards and rubrics.

Diaz-Lefebvre emphasizes learning for understanding. His guidelines for reading the assigned textbook promote active student involvement and participation, paving the way for demonstrating understanding through the MI-based learning options. By providing numerous examples of student work, including photographs and student quotes, Diaz-Lefebvre offers a compelling rationale for considering MI theory at the post-secondary level. Easy to read and accessible to non-academic readers, the book stands out as a "rare breed" by establishing a model for MI-based education at the college level.

36- Faculty of the New City School (1994). Celebrating multiple intelligences. St. Louis, MO: New City School.

In Celebrating Multiple Intelligences, faculty members of the New City School, an independent elementary school, share their tried and true MI applications from a perspective five years after they began their school-wide MI efforts. They open with chapters devoted to each intelligence, including a narrative description of the intelligence, lesson plans, activities that support the intelligence, and ways to identify student strength in that intelligence. Each chapter ends with a list of related resources for children and teachers.

In the next section of the book, the authors consider themes related to the school's application of MI theory. Covering such topics as diversity, science, thematic teaching, simulations, pre-primary learning centers, genuine understanding, student created museums, and assessment and portfolios, each chapter provides a different vantage or starting point for considering MI theory. The authors conclude with information regarding ways to communicate with and involve parents, along with ways to begin applying MI theory in the classroom. They offer ideas for organizing reading, mathematics, social studies, and science instruction from an MI perspective.

The strengths of this book include its conversational tone, relatively jargon - free introduction to the

intelligences, and richness of resources and ideas that have already been used with success. The authors provide a variety of ways to consider integrating MI theory into the curriculum, so that if particular activities are not appropriate for adult students, teachers can easily modify them. (Note: A follow up book by the NCS faculty, Succeeding with Multiple Intelligences: Teaching through the Personal Intelligences, offers additional lesson plans across the different intelligences, with special emphasis on the intrapersonal and interpersonal intelligences).

37- Glasgow, Jacqueline N. (1997, March). Let's plan it, map it, and show it ! A dream vacation. Journal of Adolescent and Adult Literacy, 40(6), 456-467.

Glasgow describes a multi-faceted, integrated learning project she designed for a ninth grade English class. Working in teams to plan a dream vacation, students completed activities in each intelligence area. Glasgow assigned class work one might associate with a traditional language arts program, such as reading fiction and travel brochures, keeping a reader response log, researching and writing reports, and scripting commercials. However, she also introduced a wide variety of additional assignments that tap into other intelligences, including budgeting, creating travel posters, presenting music and dances representative of the vacation locale, interviewing, and role-playing.

Within her unit, Glasgow has designed a series of activities aimed at building the students' teamwork skills. She includes assessment activities that promote both peer and self-evaluations of student work and team success, as well as assessment checklists to facilitate this process. Offering an excellent example of real-world curriculum and assessment activities that draw on the range of intelligences, Glasgow's work is described in enough detail to be replicated, or the unit can serve as a template for designing other MI-based project experiences.

38- Gregg, Madeleine (1997, May/June). Seven journeys to map symbols: Multiple intelligences applied to map learning. Journal of Geography, 96 (3), 146-152.

Gregg describes how MI theory can influence the development of lessons that teach about maps. In the process she offers an excellent example of applying MI theory to enhance student understanding of important concepts. In this case, Gregg presents key understandings involved in reading maps, coupled with MI-based activities that can be used to build those understandings: "construct understanding," activities which introduce a new idea, and "elaborate understanding," activities which reinforce ideas that students have previously explored.

In Seven Journeys to Map Symbols Gregg offers a unit that focuses MI efforts on enhancing and assessing students' understanding of content. A helpful companion to more conceptual works, particularly those by Gardner, regarding using MI to promote understanding, the article includes goals and related activities in sufficient detail to replicate, or help teachers create a rubric for assessing activities. It also provides a model for generating further ways to build student understanding of a concept by tapping a range of intelligences.

39- **Hatch, T. (1997, March). Getting specific about multiple intelligences. Educational Leadership, (55), 26-29.**

Thomas Hatch describes how an MI approach informs teacher assessment of student strengths. Instead of considering only certain children as "smart," Hatch advocates viewing children across the range of qualitatively different strengths they display. Cautioning against intelligence-based labels, he notes that each intelligence can be further broken down into sub-abilities. To clarify, Hatch refers to the real adult world in which those who possess linguistic strength may be represented in a variety of professions, such as a reporter, secretary, or lawyer. Instead of assuming that a child who displays a given intelligence will uniformly make use of this strength in all areas, Hatch suggests that we pay attention to the specific roles and situations within which children make use of their intelligences.

Hatch describes three children who demonstrate interpersonal intelligence in very different ways. Ned organizes, Kenny negotiates, and Mark tends to relationships. Hatch argues that teachers must seek a balance between helping children develop their strengths and teaching them the skills required for success in school. He proposes that teachers organize their curricula around the child, not around the intelligences. He warns that we must view the intelligence profiles of students solely as tools to help teachers understand their particular needs. This article cautions educators to avoid the common pitfall of labeling students with the name of one intelligence or another. It is helpful in making connections between what the theory says about intelligence (and how it operates in the real world) and how teachers should approach the description of student strengths in educational settings.

40- **Letourneau-Fallon, P. (1996). Reflections on workplace education: Teachers talking to teachers. Rutland, VT: Vermont Institute for Self - Reliance (Vermont Adult Literacy).**

In Reflections on Workplace Education, Letourneau-Fallon explains the range of issues that emerged when the Better Education Skills Training (BEST) team conducted its own workplace education program. The study is divided into five sections, each dealing with different aspects of workplace education, including the "changing workforce" and the concomitant need for workplace education, program design, and effective classroom practices that respect diversity. Letourneau-Fallon also provides information about the business culture and examines how beliefs and attitudes affect the way teachers view their students. The author presents MI in terms of how an understanding of the theory can influence one's views of students and ways of teaching.

Although clearly not a comprehensive review of MI applications, this is a useful resource for individuals involved in workplace education because it offers a manageable place to begin considering MI-based practices in this specific context.

41- Long, P. and Bowen, J. (1995). Teaching students to take control of their learning. Paper presented at the International Conference of the Learning Disabilities Association, Orlando, FL.

In this brief paper, Long and Bowen present ways to combat the "downward spiral" that often results from a student's lack of involvement and motivation in school, common, especially among students with learning disabilities and/or attention deficits. The authors suggest an educational program designed to help these learners develop an "internal locus of control," which can lead to greater student self - confidence and positive views of self-competence.

Using MI theory as a key element of the training system, the authors provide ways for students to identify the reasons for their difficulties in school, such as lack of confidence in their abilities or weak decision-making skills. Along with other topics, their course promotes building student self-understanding and helping students' identify their long and short-term goals.

As the authors suggest, this educational unit may be integrated into a health science course, with perhaps the most benefits going to those students who experience learning and motivational difficulties in school. However, the material covered may be expanded to reach a larger population, such as adult students who sense that they do not have sufficient control over their lives.

42- Safi, A. (1996, March). Ditch the dictionary: Finding a vocabulary comfort zone. Vocabulary, reading and multiple intelligences in an English as a second language classroom. Paper presented at the annual meeting of TESOL, Chicago, IL.

Safi describes a faculty development workshop, presented by Johnson and Wales University, entitled "Ditch the Dictionary." In this workshop, teachers learned ways to apply MI theory while developing lessons in vocabulary development and reading instruction for the ESL classroom. The workshop coordinators first identified that the university's non-native English speaking students tended to be anxious about their vocabulary, "overusing" the dictionary as a result. The author presents the coordinators' method for conducting a reading course based on MI theory and the recognition of different learning styles. Safi's paper describes concrete strategies for new word recognition. This resource illustrates a very specific application of MI theory in adult ESL instruction.

43- Smagorinsky, P. (1991). Expressions: Multiple intelligences in the English class: Theory & research into practice (TRIP) (Report No. 16647-0015). Urbana, IL: National Council of Teachers of English. (ERIC Document Reproduction Service No. ED 331 090)

In Expressions, Peter Smagorinsky demonstrates how to integrate MI theory into high school and college-level language arts instruction. The guide is meant to help teachers develop content-specific lessons that encourage students to use a range of intelligences. While some activities, such as writing about peer groups, are clearly aimed at a young adult audience, many of the book's suggested activities

can be used in GED preparation and other adult secondary education contexts.

Opening with an introduction to MI theory, the remainder of the book focuses on how English teachers, by drawing upon MI theory, can expand traditional language arts instruction. Many of the suggested activities listed under each intelligence category are standard fare in good language arts instruction, such as retelling a story from different perspectives or writing a persuasive letter. Other activities are more novel; for example, Smagorinsky suggests having students prepare artistic maps of concepts from literature or having students select the most dynamic characters from a book and produce a sketch in which they all meet in a new context, complete with musical accompaniment. With its focus on language arts instruction at the upper secondary levels, where the application of MI theory is found less frequently, this guide makes a useful contribution that teachers should find worthwhile.

44- Taylor-King, Sheila. (1997, July). Using MI and multi-sensory reinforcement approaches to enhance literacy skills among homeless adults. Paper presented at the International Congress on Challenges to Education, Kihei, HW.

Taylor-King begins her paper with the assertion that, in order to be successful in teaching literacy skills to homeless adults, one must be cognizant that each individual possesses his/her own particular set of talents and intelligences. The author states that the students in such programs must be encouraged to share their own experiences in an effort to engage them in their studies and improve their self - esteem. Educators in programs that serve homeless adults must strive to use what the author terms "andragological techniques," which praise students for their unique contributions to a diverse student population. The author describes MI theory and practices as being critical to the development of programs for homeless adults. MI theory is seen as the basis for an education that is more individualized and, as such, tailored to the needs of each individual homeless adult student.

45- Teacher-Created Materials. (1999). The best of multiple intelligences activities. Westminster, CA: Teacher Created Materials, Inc.

The primary strength of this 350+ page guide is that it contains activities that can be used to supplement pre-existing curricula. In the first section, the authors introduce MI theory, addressing reasons and methods for teaching through the multiple intelligences. They discuss alternative means of assessing the intelligences and offer a helpful introduction to the topic, although applying any of their suggested approaches would require the use of supplemental resources.

The authors present two ways to bring the intelligences into the classroom: "straight" and infused into the regular curriculum. For the former, one starts with the intelligences and creates activities that touch on each of them. For the latter, one starts with subject areas and integrates intelligence-based activities into instruction. Emphasizing each of the eight intelligences, the authors present activities in five sections: language arts, mathematics, science, social sciences, and the arts. It is important to note that this book

presents the authors' conceptualization of MI theory in practice. Acceptance of this "teaching everything 8 different ways" approach when applying MI theory is not required to make use of this resource.

Like many MI resources, this book has some errors regarding terminology and descriptions of the intelligences. For example, the intelligences are inaccurately referred to as "learning styles." Musical intelligence is sometimes referred to as "rhythmic" intelligence. However this has no bearing on the quality or usefulness of the book's numerous activities, which are reproducible and easily incorporated into a pre-existing curriculum. Regardless of how the MI-inspired effort is framed, this book is useful to the individual who is looking for MI activity ideas.

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